EFFECTS OF COMPUTER GRAPHICS AND ANIMATION INSTRUCTIONAL MODES ON JUNIOR SECONDARY STUDENTS' ACADEMIC ACHIEVEMENT AND SKILLACQUISITION IN BUSINESS STUDIES IN IBADAN, NIGERIA

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CERTIFICATION

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DEDICATION

This thesis is dedicated to the **Almighty God** for His unfailing love, mercies and favour.

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ABSTRACT

The level of students' achievement and skills acquisition in business studies at the Junior SecondarySchool Certificate Examination is just slightly above average in Nigeria. The curriculum specifies that the skills aspect should be taught practically, using a computer, reports have, however, shown that these aspects of the subject are taught and examined theoretically. Extant studies on how to improve students' achievement and skills in business studies have focused largely on other teaching methods, but with little attention paid to the use of Computer Graphics Instructional Mode (CGIM) and Computer Animation Instructional Mode (CAIM). The study, was therefore, designed to investigate the effects of CGIM and CAIM on Students' Achievement in Business Studies (SABS) and Acquisition of Skills in Business Studies (ASBS). The moderation effects of Students' Interest (SI) and Students' Self-efficacy (SSe) were also examined.

The Psychomotor Theory provided the framework, while the pretest-posttest, control group quasi- experimental design with 3x2x2 factorial matrix was adopted. Purposive sampling was used to select two Local Government Areas from Ibadan city and one Local Government Area from Ibadan less city. Purposive sampling technique was used to select nine schools that had functional computers (six from Ibadan city, three from Ibadan less city). Thirty Junior Secondary School students were randomly selected from each school, making a total of 270 students who participated in the study. Ninety students were randomly assigned to each group: CGIM, CAIM and Control.Instruments u sed were Business Studies Achievement Test (r=0.82), Business Studies Skills Acquisition Scale (r=0.86), Business Studies Interest Scale (r=0.84) and Business Studies Self-efficacyScale (r=0.80) and Instructional Guides. The treatment lasted eight weeks. Data were analysed using analysis of covariance and Sidak post-hoc test at 0.05 level of significance.

There was a significant main effect of treatment on SABS ($F_{(2,257)}$=137.79, partial η^2=0.52) and ASBS ($F_{(2,257)}$=327.91, partial η^2=0.72). Students in CAIM had the highest mean score (30.64) in SABS, followed by those in CGIM (25.20) and control (19.48) groups. Students in CAIM had the highest mean score (33.75) in ASBS, followed by students in CGIM (28.51) and control (11.71) groups. There was a significant main effect of SI ($F_{(2,257)}$=12.48 partial η^2=0.047) on SABS and SSe ($F_{(2,257)}$=23.39, partial η^2=0.08). Students with high interest had the higher mean (26.11) than low interest group (24.10). Also, students with high self-efficacy had a higher mean (26.32) than those with low self-efficacy group (22.99). The two-way interaction effects of treatment and SSe was significant on SABS ($F_{(2,257)}$= 7.03, partial η^2=0.05) and ASBS ($F_{(2,257)}$=18.00, partial η^2=0.12). The highest mean score was from CAIM (32.52), followed by CGIM (25.78) and control (19.78) groups. For ASBS, students in CAIM had the highest mean (33.87), followed by CGIM (32.93) and control (12.39). The three-way interaction effects of treatment, SI and SSe on SABS and ASBS were not significant.

The computer graphics and animation instructional modes enhanced the junior secondary school students' academic achievement and skill acquisition in business studies. Thus, these instructional modes should be employed by teachers.

Keywords: Computer graphics instructional mode, Computer animation instructional mode, Achievement in business studies, Skill acquisition in business studies.
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CHAPTER ONE
INTRODUCTION

1.1   Background to the Problem

Business Studies is a compulsorysubject under vocational education. It equips students with the required skills and practical knowledge to function effectively in the business world in consonance with one of the objectives of the 6-3-3-4 system of education in Nigeria. The national policy on education, aims at providing secondary school students with the necessary pre-vocational skills to enable them to be useful to themselves, the community in which they live and the society at large.

The subject is important because skills acquired in business studies at thislevel, positionstudentsto become affluent job creators instead of job seekers and prepares them for higher education (Adeyemo, 2013). Business studies is a fertile subject for entrepreneurial education since it enables students to be self-employed and be functional after leaving school. It is taught as one of the essential subjects that enables students to acquire useful skills for a more functional living within the society (Adeyemo, 2013).

It seems business studies has not been properly implemented in Nigerian secondary schools due to the prejudice against vocational education. The general belief about the subject which form a part of the vocational education, is that it is a training for the dropouts. This view is strengthened by the mindset of manyNigerian parents who prefer conventional grammar schools to commercial schools whose curricula has been directed at the training of secretarial and clerical employees. This false impression has been correctedbythe National Policy on Education (2004), whichrecommendedthe6-3-3-4 system of education and included business studies in the secondary school curriculum.

The National Policy on Education (2004) emphasised the inclusion of vocational and technical education subjects in the curriculum in order to make the recipients employable or self-reliant on leaving school. To this end, the secondary school education is provided in two stages, the Junior Secondary School (JSS) and the Senior Secondary School (SSS). The mainaims of secondary education are the

education of students for worthwhile dwelling in the society and the preparation of students for higher education. Business Studies is therefore, relevant because of its potential to prepare students for work life.

Subjects offered under business education in the senior secondary school system of education in Nigeria include: typewriting, book-keeping, financial accounting, commerce, computer and economics. A commercial student is expected to offer a maximum of three out of the six commercial subjects. The components of junior secondary school business studies are typewriting, shorthand, book-keeping, office practice, computer and commerce.

The Comparative Education Study and Adaptation Centre (CESAC) revised 2001 listed the objectives of business studies as follows:

 i To enable the students to acquire the basic knowledge of Business Studies;

 ii. To develop the basic skills in office occupations;

iii. To prepare students for further training in business studies;

iv. To provide orientation and basic skills with which to start a life of work for those who may not undergo further training;

 v. To provide basic skills for personal use in the future;

vi. To relate the knowledge and skills to national economy.

The objectives of pre-vocational education,according to the National Policy on Education (2014)include; business skill acquisition, exposing students to career awareness by exploring usable options in the world of work andenabling youths to have afull knowledge about technology.The National Policy on Education aimed at introducing students into the various sectors of technology and selecting vocations at the completion of junior secondary school. Business studies is an integral part of Vocational Education which has to do with exposing and discovery the skills that students will be required in the world of work for effective functioning

However, business studies includea number of skills such as keyboarding, computer and typewriting skills. This study is focused on keyboarding as a communication tool such as page set-up, techniques development in keyboarding, paragraphing, printers' correction signs and marks which can only be taught and developed systematically. It is, however, observed that students' performance and acquisition of skills in the subject is not impressive.

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Table 1.1: **Statistics of Performance in Business Studies in Oyo State (BECE) from (2008-2017)**

Year	Total Sat	Total Credit A – C	Total Pass P	Total Fail F
2008	77,373	45,918 (59.34%)	25,575(33.05%)	5,880 (7.60%)
2009	81,965	43,631 (53.23%)	32,536 (39.70%)	5,798 (7.07%)
2010	77,738	47,639 (61.28%)	28,824 (37.08%)	1,275 (1.64%)
2011	72,690	37,796 (52.00%)	27,770 (38.20%)	7,124 (9.80%)
2012	88,223	48.211 (54.65%)	32,465(59.47%)	7,547 (8.55%)
2013	73,351	50,289 (68.55%)	16,092 (21.94%)	6,970 (9.50%)
2014	86,421	40,284 (47.77%)	44,131 (51.07%)	1,006 (2.32%)
2015	93,328	52,653 (56.42%)	39,427 (42.25%)	1,248 (1.34%)
2016	93,088	55,194 (59.29%)	35,962 (38.63%)	1,932 (2.07%)
2017	100,734	52,710 (52.32%)	47,712 (47.36%)	312 (0.31%)

Source:Oyo StateMinistry of Education, Science and Technology, Evaluation Department.

Table 1:1 indicates thatstudents' performance in business studies is not encouraging between 2008 and 2017. The failure rate has been fluctuating since 2008. The percentage of students with distinction and credit did not rise above 62% for 10 years except in the year 2013 when the figure of students with distinction and credit increased to 68.55% and, again, dropped to 47.77% in 2014. It increased from 47.77% to 52.32% in 2017. Also, the percentage of students with ordinary pass has been fluctuating since 2008 till 2017, ranging from ordinary pass of 21.94% to 59.47%. The poor performance in business studies in Oyo State BECEmay have been because students taking the subject in junior secondary schools are not taught and examined with computer as recommended in the junior secondary school curriculum.

The skills aspect is expected to be taught practically using computers to enable the students to demonstrate what they have been taught theoretically. Although, the curriculum specifies that business studies should be taught both practically and theoretically, experience shows that teachers only focus on the theoretical aspect. This may partly be responsible why some of the students are unemployable. As it is stipulated in the curriculum, business studies containsthree sections: Section A concerns with the objectives, Section B deals with theory and Section C focuses on the practical aspect. Perhaps, the high unemployment would have been reduced, if the practical aspect of the subject were taught in school, but this aspect has been ignored.

The topics which both the teachers and the students consider as "difficult to teach" and "difficult to learn" such as techniques development in keyboarding, paragraphing, page set-up, printer's correction marks and signs cannot effectively be taught in the classrooms without the use of computer. Skills in business studies are taught in unattractive ways. Lack of qualified teachers also has a negative effect on the acquisition of business skills (Mohd, 2010).

According to Ibode andOlamigoke (2018),the world has witnessed a revolution in the way things are done in this age of technological advancement. The tremendous development witnessed in technology has made its application easy and faster as evident in fields such as communication, e-banking, e-commerce and e-learning. Therefore, the dynamics of the present technological age has formed a completely new world of interaction and learning (Olamigoke, 2019).In view of this, each nation of the world is taking up new technologies in an attempt to be relevant technologically. Indeed, technology has become vital in expert fields like medicine, commerce and industry, entertainment and education(Olamigoke, 2019).

There is a need, in this 21st century, for a motivating method of encouraging students to learn betterand improve their future participation in promoting their future involvement. One of such methods, according to Mayer, Dow and Mayer (2003) and Adegoke (2010), is multimedia presentation which is supported with visual and verbal formats, including pictures, animations, texts, and narrations. Multimedia learning can be effectively used to differentiate media, mode, and modality. Media is the method used to impart teaching,such as books, a computer, or video. Mode refers to the manner of presenting the lesson, such as words (verbal) as against pictures (non-verbal). Modality means the information processing channel employed by students to interprete, such as auditory or visual (Mayer, 2005).

In this study, the mode is grouped into three: view mode, trial mode and test mode. The view mode is meant for students to observe the teaching package instruction, the trial mode is for students to practice what they have observed or seen in the view mode and the test mode is for students to assess themselves as well as the teachers assessing the students.

Research indicates that using multimedia and meta-cognitive strategies such as graphics and animation in biology improved students' achievement scores (Sangodoyin, 2011). The usage of multimedia, according to Nimavathi and Gnanadevan (2008), enables students to acquire a live experience of some scientific concepts, for example, a diagram can be explained in detailswith the 3-dimensional impact which helps the students in understanding the lesson clearly. Rai (2009) argued that the usage of multimedia enhances creativity and also covers all areas of teaching by employing textual content, graphics, and moving images, sound, and music in computers.

Singaravelu (2009) discovered that learning vocabulary items in Tamil was easier and more effective using multimedia package than traditional strategies. Bates (2000) affirmed that multimedia learning package enhances the success of learners and instructors in an education technology programme. According to Crain (1994), computer-based instruction provides a better opportunity for creativity, sustained motivation and immediate recall of learned facts. Funkhouser and Djang (1993) discovered that high school algebra and geometry students that made use ofcommercially available problem-solving software performed significantly better in examinations of mathematics content than a comparable group of students who did

not use the software. The students using the software programme also made significant impact in providing solutions to problems.

Simkins (2002) identified the kinds of multimedia as basic technology, multimedia networking and platforms, the relation of multimedia with the internet. They also identified the fundamentals of animation as the methods of animation formation. Simkins (2002) noted that multimedia improves students' acquisition of skills. Multimedia, has,therefore, become a necessary tool for teaching in the classroom. Hoftler and Leutner (2007) claimed that the efficiency of acommunicating multimedia computer package, made to house a number of cognitive and getting-to-know style, is greatlyenhanced for learning difficult topics.

Ritt and Stewart in Sangodoyin (2011) indicated that students who used anatomy and physiology multimedia software programme scored 10 points higher on laboratory practical examinations than those who did not. Abimbade (2006) stressed the importance of computer as a useful tool in education that permits self-pacing by learners, provides remedial instruction and support students' exploration of all aspects of knowledge. Computer education caters for individual students' needs, motivation, ability level and interest.

Computer Assisted Instruction (CAI) refers to the use of computer to facilitate and improve instructions (Ibode and Olamigoke, 2018). CAI is an interactive instructive technique through the computer to present academic deliveries and screen the mastering that occurs.It uses tutorials, drills, demonstration, simulation and problem-solving technique with a combination of text, graphics, and sounds in the teaching and learning process. Students can be prepared for future jobs by introducing Information and Communication Technology (ICT) into schools. If the technology aids students learning, they may be able to cope with students in other countries. In today's largely technologically dependent world, education has its value or impact of present challenges. The effective introduction of ICT into schools might contribute greatly to teachers' creative ability in providing the desired learning outcomes. Computer therefore, is expected to contribute to the acquisition of various knowledge and assist students in school work (Jedeskog and Nissen, 2004).

Furthermore, students can gain new and imaginative knowledge when taught with technology in the classroom. Learning may be enriched with pictures, films and sounds. Differentcategories of students may be taught with the application of technology. If used effectively, technology can greatly enhance learning and improve

the learning outcome of students. According to Yusuf and Afolabi (2010), the application of CAI is a support to conventional method and it produces greater achievements in the students than the conventional methods alone. Bamidele (2001), Akinola and Adodo (2002) indicated that computer-assisted instruction is a process by which students learn fast. CAI provides immediate feedback, for students to know whether their answers are right or not. It also offers different types of activities and a change of pace from teacher to group instructions.

Teaching method can be described as the way a teacher organizes the teaching process. The teaching method is a way of manipulating instructional resources and communicatingthem to make the students receive the teacher's message clearly. Teaching method is the most fundamental aspect of teaching. Business laboratories with relevant instructional materials and equipment are needed to enable students to o btain practical knowledge, skills and competencies. CESAC (2001) prescribedmateri als and teaching equipment for use in the teaching and learning processes. Teachers are of utmost importance in instilling the relevant aptitudes in the students.

Teaching method is described as a combination of several teaching behaviours and the way they are put together to bring about positive change in students (Nzewi, 1999). It involves the teacher initiating a number of activities such as writing, speaking, use of non-verbal signals, such as nodding of the head and use of nearly all visible parts of the body to communicate the content, form, concepts, and principles to be learned. The Universal Basic Education Board (UBEB) (2008) sees the teaching method as a supporting device which a teacher uses to emphasise ideas, points and beliefs through communication and manipulation of resources.

There are many secondary schools in the study area that use conventional methods of teaching students, but the use of computer graphics and animation instructional modes as a method of teaching is not common. Yusuf and Afolabi (2010) reported that Computer Assisted Instruction has animpact on the overall students' performance in secondary schools. Thus, it may be important to use the method for better performance by students. Under the conventional teaching method, a teacher would stand before students and give them information on what they are to learn.

The conventional method of teaching is the ancient teaching method specified by Philosophy of idealism. The conventional method is concerned with clarification or explanation of some main ideas to students(John, 2006;Agboola and Oloyede, 2007

and Ogunsaju, 2001).This method stresses the presentation of content materials. The teacher is more lively while the students are passive. He uses questions and answers to help them concentrate in class. The conventional method is used toinspire, clarify, expand and review information. While delivering his lecture, a teacher can dictate by his gestures, facial expressions and tones the precise meaning that he desires to convey.

A teacher using this teaching method is always very active, while the students are less active, doing all the listening. This limits the usefulness of the method. A combination of teaching methods will be more favourable as current research would suggest. Such combination may not yield the desired result without computer graphics and animation instructionalmodes being part of it (Sangodoyin, 2011). The conventional method is used mainly when a new subject is to be introduced to students, but it is also an important method for summarizing ideas, showing the relationship between theory and practice and re-emphasising main points (Agboola and Oloyede, 2007).

Babawale (2013) refers to the conventional method as expository method characterised by an active teacher who does all the talking and the passive pupils or students who merely listen or take down notes. The method is popularly known as the talk-and-chalk method (Babawale, 2013). The teacher could if he wishes, ensure that writing on the board accompanies talking. It is a one-way communication that rules out students' participation in the learning process.

Lai (2002) observes that the conventional method is not always the most effective teaching method, due to the fact that it is solely on intellectual development and ignores experiential knowledge. Cheng (2000) argued that the conventional method enables a learner to have information of the subject matter. Undoubtedly, the teaching approach has not been able to convey the desired or expected learning outcomes of producing students that can think and provide reasonable solutions to whatever problem that is before them. There is, therefore, a need for business studies teachers to have a change of teaching method in order to see how it can influence learning outcomes.

Wosu (2016) asserted that business education teachers must continually search for teaching strategies that would make for meaningful teaching and learning. The overall achievement of students in Junior Secondary Certificate Examination Business Studies has been declining, the students' attitude towards the subject tend to be

negative and most of the business studies teachers show inadequate performance and are ill-prepared for the teaching of the subject. However, Wosu concluded in her studies that brainstorming and field trip methods are effective teaching strategies that teachers should continuously use in teaching business studies.

The talk-and-chalk method will not be appropriate for teaching business studies especially the skills aspect as it does not support participatory learning. It might, however, be complemented with other methods. Akinsola and Igwe (2002); Akpoghol, Ezeudu, Adzape and Otor (2016)found that an aggregate of the lecture method with different strategies that are student-centredcan increase the knowledge and use of difficult chemistry concepts. It canimprove learning and ensure higher scoresin business studies and change the belief that the lecture technique is feeble. This suggests that instructors ought to use the lecture method and complement it with other inventive techniques in order to enhance the learning outcomes of students.

Ekpeyong and Nwabuisi (2003) affirmed that the integration of business subject in education has not been successful. Educators and researchers are continuously seeking techniques that could help students to learn better and more meaningfully. Usman (2016) affirmed that one important goal of an educational enterprise is to find ways of minimising wastage so as to make educational resources more effective and productive. Therefore, effective teaching which results in meaningful learning is a means of achieving effective and dynamic education. Okoye in Wosu (2016) explains that effective teaching enables learners to learn more quantitatively and qualitatively, while bad teaching leads to terrible studying and performance. Alio and Harbou (2000) claimed that the instructional strategy employed by teachers influence the cognitive and affective outcomes of students.

According to Samba (2010), teachers' ideas of understanding and mastering are the basics on which efficacious instruction is built. The teacher's information to students, assist in understanding specific categories of students. Effective teaching means the ability of teachers to transfer information efficiently. This cannot be done without having the physiognomies of a student, his problems, and the suitable teaching methods. However, business studies can be taught, using the lecture technique with computer graphics and computer animation as an innovative instructional strategy.

Computer graphics and animation are sub-categories in educational technology. The use of divers styles of instructional modes helps to simplify abstract concepts during the teaching and learning process. Computer Assisted Learning (CAL) denotes the usage of a computer as a teaching aid.The teacher offers students computer guidelines in a programming language, uses the computer as a device, employs in-built software includingword processors and spreadsheets to teach. Students take drills, exercises, tutorials and use exploration tools or simulations on computer systems (Deepark and Turner, 2006).

The use of information technology in the classroom remains a controversial issue in many secondary schools. Nowadays, many traditional classrooms utilise some kinds of technology as for instruction. Computer Assisted Instruction (CAI), especially communicating multimedia are some of the toolstechnology presents for use to support learning in secondary schools (Bhagwan, 2005). Computer graphics is the creation, storage, and manipulation of colours, drawings, and pictures with the aid of a computer system (Adekoya and Adekoya in Sangodoyin, 2011). They are produced from by a wide range of rendering software program. Chen, Shi and Xuan (2007) opined that as a result ofupgrading in therenderingmethod, computer graphics are practical and can be used as anundoubted type of photographic picture falsification.

Computer graphics consist of different software packages which can be used for graphic presentation programmes for effective teaching and learning. It may be found in art, science, sports, in fact everywhere (Sangodoyin, 2011). The most popular graphics software packages used for graphics instructional modes are Coreldraw, Microsoft powerpoint and computer-aided design (CADs). According to Sangodoyin (2011), the graphics presentation modes are designed to help teachers produce high-quality learning packages, concepts, and ideas or lesson plans that are interesting to students and effective in conveying teacher's message. The features of graphics presentation programmes are text handling, outlining graphing, drawing, clip art, and multimedia support. Computer graphics packages can be broadly grouped intoanalytical business graphics application, design application, creative drawing and painting application. (Adekoya and Adekoya in Sangodoyin, 2011).

Animation denotes the existence of life in graphics (Olamigoke and Ibode, 2018). It is a far motion-picture shown by employing a sequence of representations, images of objects which can be completely different from each other when seen

hastily, on motion (Pilling, 1997). Literally, animation is moving something (text and images) that cannot move by itself. Mayer and Moreno (2002) allude to animation as a mimicked film portraying development of drawn (or replicated) objects or as an image in motion. Scholars further refer to animation as a replicated gesticulation picture portraying the motion of replicated gadgets, or as an image in motion.

Animation has features and innovations that can enliven the learning experience. In educational terms, animations are a technique of visualisation. Sanchez, Canas, and Novak, (2010) indicated that educational animations are made for the purpose of nurturing learning. The use of animations assists students to perceivethat information has significantly improved considering the appearance of influential graphics-oriented computer system. The application of technology permits animations to be produced much more easily and cheaply than in the past. Formerly, traditional animation needed specialized labour-in depth methods that were both time-consuming and highly-priced. In contrast, the software now available makes it possible for character educators to playwright their own animations without the need for professional expertise. Thus, teachers are not constrained to depending on still graphics but can, with ease, convert them into academic animations (Pilling, 1997).

Computer animation is another meta-cognitive strategy format utilised as one of the treatments that will be used for this study. Animation means using drawing, comics and different graphic materials to make motion images. Computer animation is images in motion (Dywer and Dywer, 2003). Computer animated-media instruction technique is a teachingtechnique which applies, graphics and cartoons in classroom teaching. Animated-media instructional method involves the use of two or more different types of animated instructional media in lesson delivery. Buttressing the view, Mayer (2001), noted that animated teaching involves using of Video Compact Disc (VCD), Digital Video Disc (DVD), Powerpoint, or film,in impacting knowledge.

When animation is used in lesson presentation, still pictures, contents, designs, motion pictures, foundation sound, as well as some narrations, are consolidated at a proportional time in order to assist students' understanding of concepts. Interactive elements such as graphics, text, video, sound, and cartoonare used in teaching (Mayer and Moreno, 2003). The suppleness of learning by animation permits a broader series of stimuli thereby increasing students' involvement in learning. Studies by Kearsley

(2002) discovered that students that were taught with animation get larger self-esteem and incentives in ICT classes.

Cooper (1998) states that the usage of message with pictorial form enables students to improve understanding and retention. Animation relates to the strength of the humanoid visible system (Rieber, 1991). Animation also helps students to imaginevigorousprocedures, that arehard to visualize and lessens the reasoning load (Rieber, 1991). Computer graphics and animation offer the capability to improve the interest of a task, in addition to inspiring students to be innovative and make use of their thoughts. This study used Microsoft powerpoint, corel draw, flash and adobe to teach selected topics that the survey perceived as difficult.

Starbek, Eriavec and Pekial (2010) indicated that students showedhigher comprehension and retention when taught genetics with the use of audiovisual aids. Students' interests might be stimulated and sustained with the use of multimedia as a teachingmethod (Adegoke, 2010). Renninger and Hidi (2011) put interest as an essential psychological and emotive feature that monitors attention and enables mastery in diverse areas. Aggarwal (2009) ascertained that the purpose of instruction is to arrest the students' awareness by stimulating and sustaining interest in the lessons of multi-dimensional teachings. Mangal (2010) reported that ideal learning environment and techniques, purposeful teaching materials and a stimulating teacher have a high impact on students' interests and achievement. Mc Clnermey, Dowson, Young and Nelson (2005) defined interest as a pre-determinant of one's insights. It might be a temporary or long-lasting emotion of desire. However, students' interest might be stimulated and maintained with the utilisation of multimedia instructional method (Adegoke, 2010).

Apart from interest, another moderator variable in this study is self-efficacy. It is self-assurance in someone's capability to achieve success in a task (Zimmerman, 2000; Bandura, 2001). Ormrod (2006) defines self-efficacy as the strong belief that one is able to achieve definite aims. According to Bandura (1994), self-efficacy has a great effect on the choice people make and their actions. It is one'sbelief in the ability to plan andto attain a particular goal. Research (Schunk, 2003; Ilori, 2004:Rashid, 2004; Bates and Khasawah, 2007; Liu and Koirala, 2009; Akujieze, 2013; Shkullak, 2013) have shown a significant correlation between instructor's self-efficacy and the performance of students. It can improve teacher's level of perseverance and comportment when faced with difficulties.

People who have high self-efficacy usually set greatgoals, intensify their efforts, display flexibilityalso persevere over a longer time compared to people who have low self-efficacy. Students and instructors who distrust their learning competences perform lower than those who are confident of achieving a task. Hence, individual intrinsic trusts are the best pointers of the judgements people make throughout their entire lives (Albion, 1999). This study, therefore, found out whether self-efficacy and interest moderate computer graphics and animation instructional modes. It is, therefore, imperative that a study that verifies the above variables on learning outcomes in business studies be undertaken.

Business skill acquisition refers to the system of training that can aid the attainment of understanding for self-reliance. It encompasses the teaching of individuals in diverse areas of lawful trade contracts between the trainers and the trainees for a certain period and under certain situations. Ochiagha (1995) described skill acquisition as the process of describing the habit of active thinking or behaviour in a specific activity.According to Mike (2014), skill acquisition is the ability to be trained on a particular task or function. Skill acquisition is the capability to try to domeaningful exercise or work. In developing a skill, suitable attitudes and habits are learned.

Business skill acquisition seeks to offer individuals with skills, vocations and entrepreneurial skills such as hat making, bead making and stitching.The United Nation Development Report (1990) declares that improving the human factor is the actual wealth of a kingdom. Authentic improvement can be attained through creativity, initiative, ability, and obligation. Acquisition of skillsis the procedure of freeing human energy; it is a way of imparting opportunity for human beings to contribute maximally to their own growth and to the development of their societies.

Asante in Buwai (2004) found that skill acquisition helps to reduce the level of poverty if human beings are trained in various skills and they, in turn, make wealth for themselves and their community. According to Ogundele, Oluwolara and Adegbemi (2011), business skills achieved by students might help in job creation, empowerment of young people and poverty mitigationwhich is capable of resolving diverse social complications. Mbionwu (2008) stated that students who acquire business skills have better opportunities to become entrepreneurs after graduating from school. Kikechie, Owana, Ayodo and Ejakait (2013) that business skill acquisition provides a platform for technological excellence in the face of

globalization of the world economy. Akpotowoh and Amahi (2006) affirm that the business skills developed in business-related subjects, help to support training in entrepreneurship, in addition to furnishing students with the basic skills to start their own business.

The advancement of the economic system and the craving for sustainability is the reason for the introduction of the 6-3-3-4, and now the 9-3-4, education system in Nigeria. This education system is made up of six years of Primary School education, three years of Junior Secondary School (JSS), three years of Senior Secondary School (SSS) and four years of tertiary, depending on the field of study at the higher institution. The minimum of years to study any course is two years in the polytechnic (for National Diploma), three years in the college of education (for Nigeria Certificate in Education) and four years in the university (for Bachelor's degree).

Junior Secondary School is a part of the education programme which lays the foundation for the acquisition of knowledge, skills and competencies. Skill acquisition is highly emphasised in the 6-3-3-4 scheme with self-reliance as its central theme. According to the 6-3-3-4 system,students should be taught a number of subjects such as home economics, introductory technology and business studies at the Junior level which is planned to furnish them with the prerequisite skills for self-sufficiency. After the completion of this level, those students who may not want to continue their education up to the senior secondary school level will be able to become independent as a result of the skills they must have acquired.

The problem of youth unemployment and the high rate of povertyis evidentin the way and manner business studies subject is taught in the secondary schools of the Nigerian educational system (Ogundele, Oparinde and Moronfoye 2013). Davos (2014) noted that many college graduates are not adequately prepared to fit into the productive sector of the economy as they cannot provide services that can generate income. Ada, Omalle and Okedi (2008) attributed the poor level of skill acquisition to poor implementation of infrastructural facilities. Mbar (2006) observed that pre-vocational subjects like introductorytechnology, agricultural science and home economics were poorly implemented with obsolete and non-functional equipment. Uwameiye and Oviawe in Oviawe (2010) asserted that pre-vocational subjects should be taught through field trips and practical activities. Wosu (2016) affirmed that business studies should be taught using field trips and brainstorming methods of teaching.Imeh, Jeremiah and Ime (2010) and Agbamu, 2004 asserted that questioning,

discussion and project based methods should be used to teach business studies.In addition, according to Agbagbue, 2018 the use of Information and Communication Technology (ICT) would be appropriate to teach the subject.

However, due to lack of laboratories and equipment needed for practical activities, subjects like basic technology, home economics and business studiesare taught in a traditional teacher-centered classroom. Students copy notes from the chalkboard while the teacher does the teaching. Employment requirements in most establishments have been changing as a result of the technological impact, and as such, educational institutions have a herculean task of ensuring that students acquire necessary marketable or business skills (Ottah, 2008). According to Magbagbeola (2004), business skill acquisition involves the accrual of diverse skills that enhance task recital with the incorporation of both practical and theoretical forms of knowledge.

The researcher itemised the guiding principles to maintain acquisition of skills programme which include,establishment of teaching that offers the learners the privilege to procure skills which might be suitable for profitable jobs and the establishment of specific skills which makes one a professional in a field.Skill acquisition requires much practice, patience, interest, ability, aptitude, personality traits and conducive environment. Training entails constructive human relationship, business skills, imitation and constructive ideas. The principles guiding training in a particular field in terms of attitude, customer- relationship, productivity, efficiency, supply and demand needs to be appreciated.

From the guidelines above, it couldbe seen that acquisition of skills in business involves an all-inclusive tactic in the awareness of inventive notions. It aids in the conversion of information and skills into an innovative venture. Business skills are also referred to as entrepreneurship skills. Isike (2008) said that entrepreneurship has been recognized internationally and nationwide as a device for producing a maintainable monetary system which is the main focus of the National Economic Empowerment Development Strategies (NEEDS).

Nigeria is fast becoming a predominantly youthful society with a high rate of unemployment; therefore, it requires training the youth in entrepreneurship skills in technical and vocational education subjects in order to tackle unemployment which has reached an alarming proportion. However, with quality skills acquisition programmes, countries like America, Britain, Germany, and Japan have rehabilitated

drug addicts, school dropouts and several destitute who eventually contributed meaningfully to the economy and the development of the high volume of productivity in their countries. In their study, Kanyenze, Mhone, and Sparreboom (2000) underscore that training in vocational and technical skills will reduce youth marginalization.

However, learning outcomes refers to what students achieve in their studies and how they cope with or accomplish different learning experiences given to them by their teachers. Kuh,Kinzie, Buckley and Hayek (2006) reports that in educational institutions, success is measured by academic outcomes or how well the students meet the standard set out by the institution. Therefore, teacher teaching method determines the students' learning outcomes.

1.2   Statement of the Problem

Teaching business studies at the junior secondary schools in Ibadan has become a difficult task. This is evidentin the way and manner business studies is taught in the secondary schools. Thissituation in Ibadan which is worrisome for both the researcher and a few other educationstakeholders like the business studies teachers and principals, need for urgent measures to betaken in order to rescue the problem. Observations show that in many secondary schools in Ibadan, instructional aids for effective instructional delivery that will make studentslearning more interesting and practical in order to acquire more knowledge for highacademic achievements are found wanting.

The researcher also observed that most business studies teachers in junior secondary schools in the state have some difficulties in teaching the ICT components of the curriculum.

Business Studies occupies a fundamental position in Nigeria's move towards an industrial breakthrough among other subjects. The subject is a vocational subject currently taught in the nation in junior secondary schools. Business studies as a skill oriented subject requires the use of instructional materials and resources that will best captivate the learner. Despite the recent outcry of interactive classroom environment as an enhancing strategy, business studies teachers do not give regard to it. The conventional, docile, passive and teacher centered approach is still being preferred. This in no small measure has led to the dwindling interest and performance of students in the subject.

However, observation shows that facilities in the general school setting is in dire need and more disturbing and the fact that business studies students seems not to exhibit any form of business skill after learning. Educators have called for a shift of emphasis from the traditional content and factual acquisition of knowledge to those who will actively involve the learners in promoting learning by doing. Though, computer graphics and computer animation instructional modes have been used in science classrooms in the area of biology, mathematics and geography. Observably, however, the studies did not look at business studies as a subject and also the studies were carried out among senior secondary school students.

Therefore, the current traditional method of teaching the subject is faulty. For instance, the business studies curriculum for junior secondary schools specifies that skills, such as paragraphing, techniques development in keyboarding, page set-up, printers' correction signs and marks should be taught practically, using a computer. Reports have, however, shown that these aspects are taught and examined theoretically in schools without the use of computers. Such a shortcoming leaves secondary school graduates ill-equipped for work life.

In addition, students' performance in business studies is not encouraging. Many studies have been carried out on schools, teachers, students, class-size and home as factors that may be hindering the teaching and learning of skills in the subject. None of the studies appears to have addressed the issue of instructional strategies, most especially the use of computer graphics and animation teaching modes on Junior Secondary School II (J.S.S 2) learning outcomes in business studies in Southwestern, Nigeria. This study determined the effects of computer graphics and animation instructional modes on acquisition of skills and achievement in business studies in Ibadan, Nigeria.

1.3   Research Questions
(1)   What are the topics perceived as difficult;
     (a) to teach by teachers?
     (b) to learn by students?

1.4 Hypotheses
The study tested the following seven hypotheses.

H_{O1}. There is no significant main effect of treatment (Computer graphics and animation modes) of students on

    (a)   achievement in business studies

    (b)   acquisition of skills in business studies

H_{O2}. There is no significant main effect of interest of students on

    (a)   achievement in business studies

    (b)   acquisition of skills in business studies.

H_{O3}. There is no significant main effect of self-efficacy ofstudentson

    (a)   achievement in business studies

    (b)   acquisition of skills in business studies.

H_{O4}. There is no significant interaction effect of treatment (Computer graphics and animation instructional modes) and interest of students on

    (a)   achievement in business studies

    (b)   acquisition of skills in business studies.

H_{O5}. There is no significant interaction effect of treatment and self-efficacy of students on

    (a)   achievement in business studies

    (b)   acquisition of skills in business studies.

H_{O6}. There is no significant interaction effect of interest and self-efficacy ofstudents on

    (a)   achievement in business studies

    (b)   acquisition of skills in business studies.

H_{O7}. There is no significant interaction effect of treatment, interest and self-efficacy ofstudents on

    (a)   achievement in business studies

    (b)   acquisition of skills in business studies.

1.5   Scope of the Study

This study determined the effects of computer graphics and animation instructional modes (teaching methods) on students' achievement and acquisition of skills in business studies in Ibadan. The study involved public Junior Secondary School Two (J.S.II) Students in Ibadan. This study examined nine (9) schools with at least 10 functional computers in each of the school in Ibadan North, Ibadan North West and Akinyele Local Government Areas in Ibadan, Oyo State.

1.6   Significance of the Study

The findings would be beneficial to curriculum developers and planners in the educational sector, business studies teachers, students and their parents. The result would help curriculum developers and planners and be of great assistance to teachers who are the implementersof the curriculum.This study would contribute to the frontier of knowledge on how business skills acquisition can be effectively used for poverty lessening and eradication. Through publications and seminars, the results of the study would be made available to business studies teachers to devote more attention to the use ofmultimedia in the teaching and learning processes. It would also be significant to students of business studies as their time would be effectively utilised in acquiring necessary knowledge and skills.

The textbook publishers and media outlets (print and electronics) may find the study useful to design activities that involve the use of animated-media teaching strategy instruction to aid meaningful learning. Researchers may replicate the study in other study areas. The study would also be significant in assisting policymakers in domesticating the curriculumin schools under their management and ensuring that the curriculum is aligned with the prescribed content standard among other useful applications. The findings of this study would improve students' performance in external examinations like Basic Education Certificate Examination (Oyo State) and Basic Education Certificate Examination (NECO).

1.7   Definition of Terms

1.7.1   Conceptual Definition of Terms

Computer Assisted Instruction: Is an educational technology designed for a course and used for the goals of teaching and learning, both within and outside the classroom setting.

Information and Communication Technology: It is the technology used for assessing, assembling, operating, processing, storing, presenting and interconnecting information.

Skill Acquisition: It is the capacity to obtain skills.

Multimedia: It is any showing which involves words and images. Multimedia is the combination of instructional resources controlled by a single operating system,

usually computer-based such as video, graphics, animation, audio, and text, accessed by a computer and attached peripherals driven by special programs.

Computer Animation: It refers to a succession of graphics that change from time to time. It means life in graphics.

Computer graphics: It is the usage of images such as pictures, illustrations, tables, and opticaldepictions in combination with printed prose.

Cognitive Load: It means overall quantity of mental bustle enforced on operational recall at a given time.

1.7.2 Operational Definition of Terms

Business Interest Scale: This shows the level at which students' interest was aroused. It was measured by Business Studies Interest Scale.

Acquisition of Skills in Business Studies: This refers to learning business concepts in keyboarding as a communication tools and ledger entries. This was measured byBusiness Studies Skills Acquisition Scale.

Achievement in Business Studies: It refers to the scores obtained by students in the Business Studies Achievement.It was measured by Business Studies Achievement Test.

Computer Graphics: These were the instructional packages that are statics with different colors and texts representing topics in business studies that are difficult to learn or teach. They were picked outat the survey phase. It was measured by some exercises given at the end of the packages at the test mode.

Computer Animations: These were the instructional packages that are in motion with text and sound representing the topics in business studies. They were picked out from the survey phase and measured with some exercises given at the end of the instructional packages.

Learning Outcomes: These refer to the achievement of students and skills acquisition in business studies as measured by Business Studies Achievement Test and Acquisition of Skills in Business Studies Test.

Meta-cognitive Strategy: It is a procedure (graphics and animation instructional modes) that allowslearners to take charge of learning. It provides for more students' involvement in the teaching and learning process. This was measured by the exercises given in the instructional packages at the trial mode.

Teaching Packages: These are teaching tools /developed on the topics identified at the survey phase and perceived to be difficult to teach and learn in class, especially by reluctant students. Measurement was by exercises given in the trial and test modes.

1.8 Abbreviations / Acronyms

BSAT: Business Studies Achievement Test

BSIS: Business Studies Interest Scale.

BSSAS: Business Studies Skill Acquisition Scale

CGIG: Computer Graphics Instructional Guide

CAIMG: Computer Animation Instructional Mode Guide

CMIG: Conventional Method Instructional Guide

CTML: Cognitive Theory of Multimedia Learning.

CHAPTER TWO

LITERATURE REVIEW

This chapter provides a review of available literature that are relevant to the study. It also provides empirical support and theoretical background.

2.1 Theoretical background.

2.1.1 Psychomotor Theory

The proponent of the psychomotor or psychophysical theory is Gottfried Wilhelm Leibniz between the years 1646 – 1716. Psychomotor relates to psychical movement which today has extended to communication such as telephone skills, public speech, and computer operations like data entry, and keyboard skills among others. All these involve brain and body coordination. Lancelot (1944) proposed that manipulative skill development requires a blending of the mind and muscle. The researcher further explained that manipulative acts are guided by thought, and that a direct relationship exists between the quality of thought and the quality of manipulative performance. Watson (1980) agreed that psychomotor skill development involves both muscle and thinking skills. According to Watson, psychomotor skills are acquired through a three stage process namely; imitation (early cognitive), practice and habit.

(1) **Imitation (Early cognitive):**It is usually of short duration and includes attention, observation, and thought about how and why the skill is performed. The teacher shares the knowledge contents and demonstrates the skills. It is at this level that teacher shares the essential information about the skill, such as facts, background information and safety considerations. The skills are then broken into small steps, demonstrated and the learner is allowed to copy the skill.

(2) **Lengthy Practice or Fixation:**This includes practice sessions aimed at shaping correct performance. The learner is allowed to practice the skill alone or with the teacher over and over, with feedback from the teacher until the

basic skill is mastered. Here, the learner is able to ask questions, receive feedback, and try his or her hands on the practical task.and,

(3)   **Final Autonomous (Habit) Stage:**Correct performance becomes automatic, with increases in speed, accuracy, dexterity, timing, and greater understanding of application settings. At the third or last stage, the habit stage, proficiency develops, such that the learner is able to perform the skill twice the time at an expert level. The performance becomes natural, when the learner reaches this level, the learner is able to create his own version of the skill and teach others.

Research has also shown that mental practice alone, if it follows a demonstration or videotape of the skill being performed, does enhance skill acquisition (Beasley and Heikkinen 1983).

The following are guidelines for the use of mental practice to improve skills:

1.   Students must be familiar with the task (through prior experience, demonstrations,or visuals:) before using mental practice techniques.

2.   Students need instruction in the use of mentalpractice.

3.   A combination of physical and mental practice should provide the greatest performance gains.

4.   Simple skills, or complex skills broken down into subunits, are best suited for mental practice.

5.   Students should perform mental practice in their own time and place.

6.   Mental practice sessions should last no longer than five minutes (Johnson 1979; Beasley andHeikkinen1983).

Feedback, or information provided to students regarding their performance results, is essential in psychomotor skill development (Watson, 1980; Braverman and DeCaro, 1979). In order to provide appropriate and timely feedback, psychomotor skills must be identified as open loop, where no feedback can be received until the task is completed. Retention may be defined as "the persistence of proficiency on a skill after a period of no practice" Fischman, Christina and Vercmyssen (1982) identified several variables that influence this extended learning. Obviously, the most important factor in retention is the degree of initial proficiency. Thus, in learning skills students must obtain a high degree ofperformance initially. Research has also shown that continued practice is related to improved retention.

This concept is known as over-learning. Fischman, Christina and Vercmyssen (1982) concluded that retention is enhanced by an internalization of the skill and its

processes. Learners should also practice a skill as soon as possible after the demonstration is given. Events occurring between the demonstration and practice session tend to reduce retention. Fischman, Christina and Vercmyssen (1982) also concluded that relevant information and processes performed in the beginning and ending of a task are better retained, implying that more emphasis during teaching should be placed upon the processes occurring during the middle stages of the task. Finally, Fischman et al. (1982) found substantial evidence thatfeedback, or information provided to students regarding their performance results, is essential in psychomotor skill development (Watson, 1980;Braverman and DeCaro, 1979).

In order to provide appropriate and timely feedback, psychomotor skillsmust be identified as open loop, where no feedback canbe received until the task is completed, or closed loop, where feedback, error detection, and correction are possible during the course of performing the skill (Braverman and DeCaro 1979). These closed loop skills are usually complex skills that may be broken down into componentparts. Braverman and DeCaro (1979) offered the followingconclusions regarding feedback and its effects on skill acquisition:

1. The rate of skill improvement depends upon the precision and frequency of knowledge of results.

2. Adelay in providing this knowledge does not affect skill acquisition. However, feedback isimportant especially in the early stages of practicing a simple closed loop skill.

3. Withdrawal of knowledge of results decreases performance in the early stages of skill development but does not affect performance in the late stages. The theory allows for the generation of understanding, transfer of skill and knowledge. It relates to this work as it addresses the cognitive and physical aspect of the learner.

Experiential learning has the learners directly involved with the materials being studied instead of talking and thinking about the materials. The theory is related to this study because ICT skills can only be acquired through learning and training. Technological based skills are learnt through practice since the learner is the center of the whole learning process. Through continuous practice, learners' movement in case of psychomotor activities become more skillful; at the same time, their knowledge grows and they also develop certain attributes so acquired together.

Effective application of the principles of psychomotor theory provides information on how instruction in a skill based areas can be taught to students.

Business Studies is a task oriented subject and for task to be accomplished, the task must be broken into components in order to provide effective feedback. As a result of constant practice, the skills become automatic. Retention and transfer ofpsychomotor skills may be improved through computer graphics and animation instructional modes. In this study, the application of psychomotor theory is of importance since students are expected to master various ICT areas relating to business studies such as, page set-up, printers' correction signs and marks, techniques development in keyboarding or using Microsoft word to produce documents. On the course of carrying out the exercise, the students will be expected to imitate the teacher who will discuss the contents and demonstrate the skills to them. The students will continue to practice the skills until they are perfect in them and as well teach others.

2.1.2 The Cognitive Theory of Multimedia Learning (CTML)

The Cognitive Theory of Multimedia Learning (CTML), put forward by Mayer (2001a), presents a clear framework to direct instructional design of both printed and interactive multimedia materials. It appears that students cope with external graphical representations such as schemas, tables and graphs added to learning materials. Recent research is not always able to replicate the positive findings that have been reported in earlier CTML-studies in other knowledge domains. Mayer (2001)suggests that the nature of the knowledge domain and the nature of the external graphical representations interact with the validity of the CTML-design principles. By testing the original CTML-design principles in another knowledge domain questions about extending and/or generalizing the cognitive theory of multimedia learning are raised. This leads to the following design principles:

(a)   **The multimedia principle:** Learners benefit more from printed text enriched with pictures than from printed text alone.

(b)   **The temporal contiguity principle**:   Learners perform better when corresponding printed text and pictures are presented simultaneously instead of successively.

(c)   **The spatial contiguity principle:** Learning is fostered when printed text and pictures are presented close to one another on a page or on screen.

(d)   The coherence principle: Learning performance is higher when extraneous sound,words, pictures are excluded rather than included.

(e)   The modality principle: Learners learn more from animation enriched with audio(narration) than from animation enriched with printed text.

(f)   The redundancy principle: Learners perform better when presented with animation and narration instead of animation and narration combined with printed text matching the narration.

(g)   The individual difference principle: All design principles have a stronger impact with low prior knowledge learners and learners with higher spatial abilities, that is learners perform better when they have the pre-requisite knowledge of the object in the animation rather than not having such knowledge (Mayer 2001 and Mayer 2003). The researcher emphasised that the relation between Cognitive Theory and the design of multimedia instruction signifies of the Two- Way Street between Cognition and instruction. Protagonist posited that when the relation between cognition and instruction is a two-way street, psychologists and educators communicate in ways that are mutually beneficial to both psychological theory and educational practice significant in this study. Multimedia learning requires that students get engaged in substantial cognitive processing in verbal and visual presentation (Mayer and Moreno, 2003). The scholars reported that combinations of several multimedia techniques optimize interest in learning, retention and transfer of knowledge.

While animation explores how the brain processes information through pictures and text, multimedia learning is based on instructional messages designed as verbal and visual formats in information processing systems. Schar and Kaisher (2006) tested three of Mayer's multimedia learning principles to verify the applicability of Mayer's principles to learning outcomes. Their findings using forty-two Swiss forth-level primary school pupils did not generally, contradict Mayer's principles. However, it revealed the extent to which certain media combinations facilitated learning. Thus, the protagonist believed that there is strongempirical evidence that learning outcomes are improved by presenting the learner with verbal and pictorial information in a coordinated way called multimedia principle.

According to Kim and Gilman (2008), it is necessary to apply learning theories in designing effective multimedia instruction. According to Adegoke

(2011), all the principles have been proven repeatedly in empirical research e.g., Mayer, Bove, Bryman, Mars and Tapangco (1996) for multimedia principle; Mousavi, Low and Sweller (1995) for modality principle; Mayer, Heiser, and Lonn (2001); Moreno and Mayer (2000); Tabbers, Martens, and Van-Merriënboer (2004) for redundancy principle. However, Thalheimer (2004) has reported findings that were not in consonance with Mayer(2001) multimedia learning principle. For instance, Muller, Lee, and Sharma (2008) found that the redundancy principle did not transfer to normal classroom situations. In their study, Muller et al. (2008) suggested that addition of interesting information may help maintain the learners' interest in a normal classroom environment.

The effective use of animation and its positive results on instructional message design is made evident by other research. For instance, Nusir, Alsmadi, Al-Kabi, and Sharadgah (2010) found that the computer animation learning courseware had positive effects on students' academic performance and achievement level (high and low). Moreno and Mayer (2000) and Tabbers et al. (2004) found that learning outcomes of students who learnt physics with courseware version of animation + narration were better than their colleagues who learnt physics either with animation + on-screen text or animation + narration + on-screen text. Mayer and Anderson (1995) reported that simultaneous presentation of animation and narration improved learning. However, Grobe and Struges in Saibu (2002) found that those taught through the conventional teaching methods achieved a mean posttest score slightly higher than those taught by the audio-tutorial (narration) method.

Studies on animation + narration + on-screen text were made evident by Mubaraq (2009) results that a still picture is better than (sound) words, animation is better than a still picture, and sound is better than silence. This was supported by Chuang (1999), Adegoke (2010) and Adegoke (2011) in the studies which examined the effect of animation, narration, and on screen text-based materials when combined simultaneously; the result showed that students in the animation + narration + on-screen text group scored significantly higher on the post physics achievement test than their colleagues who were in the animation + narration only group, as well as those who were in the animation + on-screen text group.

Aremu and Sangodoyin (2010) in their study on the effects of computer animation on academic achievement of Nigerian senior secondary learners in biology observed that computer animation was effective in improving learners' in biology.

Likewise,(Gambari, Falode and Adegbenro, 2016) conducted a study on the effectiveness of computer animation and geometrical instructional model on mathematics achievement and retention among secondary schools' students, reported that computer animation was effective in enhancing students' achievement and retention in mathematics.

These studies were also not in agreement with the redundancy principle. However, Okwo and Asadu (2002) reported that three media (video, audio + picture, and audio) were found to be equally effective with no significant difference effect among the means when used for teaching physics. It is well recognised that multimedia remains the key towards improving learning outcomes.

However, the extent to which this has been achieved has not yet been addressed in business studies. In designing computer graphics and animation instructional modes for the topics picked from the survey as perceived difficult to teach and perceived difficult to learn topics, this study used four out of the seven design principles. The design principles that were used are: the multi-media principle, the temporal contiguity principle, the spatial principle and the modality principle. The Mayer's Cognitive Theory of Multimedia Learning is relevant to this study because learners will be engaged in verbal and visual presentation as recommended by Mayer Multimedia theory.

The teaching packages have been developed on techniques development in keyboarding, page set-up, paragraphing, ledger entries, printers' correction signs and they are followed by questions in form of drills, trial mode and test mode. The intentions of the drills, trial mode and test mode are to encourage students to discuss and practice the skills until they have mastered the skills and they can as well teach other people conveniently. Also, the test mode will enable students to assess themselves as well as the teacher assessing them. Students find it easy to learn and discover many things by themselves when interacting with the computers especially when they are fully guarded by a facilitator.

2.2   Conceptual Review

2.2.1   Concept of Business Education

The term business education is still synonymous with the preparation ofsecondary schools' students of business studies in both office and clerical areas. Specifically, in Typewriting (keyboarding), Book-keeping and computer which lead to initial

employment. This is a confirming image. Today, business education courses have shifted to the teaching of economics, personal finance, management concept and business communication. According to Amakiri (2006), there is the psychological problem of business studies being linked to secretariat jobs which were looked upon as a field of dropouts. Therefore, the expected enthusiasm leads to the suggestion that "If you have ambition and enthusiasm, you will quickly succeed in joining the company of the experts who have become leaders in their field of studies".

Amakiri (2006) also emphasised that the way a learner feels about any skilltells how he will develop on it. He must know his own part in the learning process. Promptness, regulating, completing assignments, co-operating with fellow students and teachers as well as proper management by students' extra time, if success must be achieved. Commenting on the perceived status of business studies in the junior school level in Nigeria, Barmore(2008) argues that most people erroneously believe that science subjects are more important to national development than art subjects. This explains why high premium is placed on it at the expense of its art counterparts. The researcher observed that in most science subjects, even when they do not have the flair or aptitude for it. For example, most of the academic competitions at the state and national levels revolve around science subjects to the exclusion of business studies. In the same vein, most of the academic laurels won or awarded have been in the areas of sciences and mathematics. Nyamba and Mwajombe (2012)stated that such skewness in favour of some subjects over others tend to induce a negative predisposition among students towards the subject. This aparthy is clearly demonstrated by most students towards such important subject as business studies, (Barmore, 2008).

2.2.2 Concept of Teacher Quality

The Federal Government observed that one of the serious factors, which can inhibit the success of the 6-3-3-4 programmer, is shortage of trained teachers in various specialist area of Business Education. No matter the innovative and creative effort of any educational programmer, its ultimate success depends on those who operate it. The teacher stands at the center of the school system. He has a great role to play in ensuring that the educational system is updated. Adeola (2011) commented that "the teacher implements the final step in the process of converting educational aims into practical realities" the teachers are the pivot of any educational system and occupies a

significant position in any educational setting. The teacher translates educational policy into actions, and molds the character of the society's leaders of tomorrow.

It has also been observed that many teachers are trained in the traditional core subjects and are therefore unsuitable for the vocational competence presently required. Nwanaka and Amaehule (2011) reports, "the public believe that the falling standard of education especially the poor performance in public examination is caused by ineffectiveness and lack of personal commitment of teachers", the teacher's preparation or training is an important ingredient for performance in the classroom. Nelson (2007) explained, "What teachers bring into the classroom dictates the quality of the educational experiences of their students. In order to understand how to create optimal learning environments that promote interest in academics, it is essential that we study teacher variables linked to student interest"

According to Olatoye (2011), teachers play an important role in determining the students' interest in any subject. In other words, the ability to motivate students and direct class activities depends largely on the trainingacquired by the teacher. In most schools' system in this country, there are numerous classroom teachers who were employed to teach subjects in which they had no training (Nwanaka and Amaehule, 2011). Most professional teachers that would have made excellent teachers only had a brief stay in the secondary schools and they left for the oil industries where the grass is greener. Those who have very good potentials to stimulate research and development activities in the secondary school left for the oil industries where, they felt more comfortable.

Aina (1991) observed that most of the vocation teachers (business studies teachers inclusive) are under-qualified in the subjects they teach and with all technological changes taking place. Unlike what is obtainable in some parts of the world, (America to be specific). It has been observed that business studies teachers are not qualified educationally to teach the subject as many studied related courses in higher institutions while some does not obtain their BSc in the Faculty or College of Education.

There are competency tests designed to help in the selection of qualified teachers. Unless a teacher passes the competence examinations, he may not be able to create alearning environment for his class. Due to lack of planning before implementation of the nation policy on education, the school systems across the country are short of the manpower necessary for the junior secondary education. In

fact, the curriculum to train the teachers for this level of education was written between June and December 1983, a year after the junior secondary school system was established by some states in Nigeria. Since the number of ill equipped teachers were deployed from other areas into the classrooms.

Even in some cases, unprepared, unskilled craftsmen were assigned classes. As a result, there are problems of:

•　　　Inability to co-ordinate the learning behaviour (outcome) and utilize it for solving students learning problems;

•　　　Inability to follow the newly recommended performance-based teaching technique for maximum student learning achievement;

•　　　Lack of competency.

These qualities can only be obtained from the teacher training colleges. In essence, the lack of competence is likely to arise from inadequate training, which may, in turn affect the learning behaviour of students in the school system. Since business studies is a practical and skill-oriented subject, it is particularly important for teacher to understand its objectives, as well as its methodology for a success-oriented classroom as this is a step towards improving the status of the subject. Therefore, the objectives of teaching business studies as outlined by Ojetunde in Nwanaka and Amaehule (2011) is as follows:

•　　　To inculcate in the student the practical skill and right attitudes necessary for a specific business job.

•　　　To develop in the student the ability to use the acquired skills and attitudes or the development of the job.

•　　　To develop in the student a good understanding, awareness of the economic and business activities of the society in which he is a citizen.

•　　　To inculcate economics literacy in the student to enable him to be an intelligent consumer of goods and services offered by the business community.

The implication of these objectives for the business studies teacher is simply that he must always focus attention on the fact that his role is to prepare his student to become a productive worker, and intelligent consumer and an effective citizen.

2.2.3　　Concept of Skills Acquisition.

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Webster's Dictionary defines skill acquisition as evolved or acquired ability. The skills acquisition is a vital tool of enablement, which seeks to offer individual with totally different skills, vocation and entrepreneurial capability like bead making, hat making, sewing, fashion designing, shoe making and making workers interested in their job and at the same time improving on their existing skills. El-Aswad and El-Sahed (2018), suggested that skill acquisition is the process of enlarging people's choice for a long and healthy life with acquisition of knowledge for a decent standard of living. The researcher went on to expatiate that it is liberty from economic, social and education and opportunities for being innovative and industrious. The main concern of human development is the worth of peoples' lives, what they are proficient in doing. Ola (2013), noted that skill acquisition is mainly to change the human person so as to bring about his or her abilities and make him or her a pacesetter, who in turn, inspires and empowers others to articulate meaningful vision for the society. The UNDP's Human Development Report in Donjour (2011), describes people as the actual prosperity of a country. As a result of skill acquisition, ingenuity, inventiveness, competence, commitment and empowerment might enhance real growth to be attained.

Asante in Buwai (2004) defines skill acquisition as a means of freeing human energy, it means given an opportunity for people to make the maximum contribution to their own development and to the self-sustaining development of their communities. However, it is obvious that the need to make the skills available is very vital and critical if the rate of poverty is to be decreased or eliminated. What then can inspire and enable the individual to put in their very best to attain maximum stage of output and being beneficial?Adedeji (1987) indicated that education, skill, technology, capital, level of remuneration is no doubt crucial. Emeka (2011) said there are many things people can do to affect their generation by means of acquiring skills. Skill acquisition is not meant only for the poor and middle class people, even career women or professional women and men as well as the youth can achieve those skills to enable them to become self-sustaining and independent. Skills acquisition can also be in the areas of making detergents, air fresheners used in lavatories for mopping the floor and bathrooms, manufacturing of izal, soda soaps, body cream, hair cream, baskets, caps, school bags and an entire lots of skills.

Buwai (2004) indicated that the eradication or reduction of poverty is a key objective of modern-day growth policy. The global community and its will power to

conquer poverty has been enumerated by the supportable events of the International Development Donors such as the United Nations (UN), the International Monetary Fund (IMF) and so on, are all prepared and ever ready since they have been empowering nations and people.

2.2.4   Business Skill Acquisition

Corporate leaders in the industry, business and government have come to realize the importance of business skill training in stimulating enterprise development as well as enhancing business success. This resulted from the scholastic argument that entrepreneurs are made or born (Abdullah, 2009). Business skill acquisition also helps to develop human capital (Ikegwu,Ajiboye, Aromolaran, Ayodeji and Okoraofor, 2014). According to Dasmani (2011), found that there is a low correlation between entrepreneurial skills and paid employment; other studies have established a significant positive influence of entrepreneurial skill acquisition and tertiary education on enterprise creation (Amadi, 2012; Stohmeyer, 2007).

Business skill acquisition does not depend solely upon a person's fundamental, innate capacities but must be developed through training, practice and experience an individual acquired. Business skill according to Bolt-Lee and Foster (2003) is the act of possessing the ability, power, authority, or competency to do the task required of an individual on the job. Two fundamental issues are used when a skill is to be acquired. According to Okoro and Ursula (2012), the first is the conditions which promote acquisition and the second is the change that will occur when the skill is acquired.

However, when an individual set out to learn a new skill, he usually starts with a communicable programme of instruction. Good learners do not jump into an operation without first receiving the necessary verbal instructions. Hence, a fundamental feature of business education is to prepare individuals for the acquisition of the needed skills to survive in a highly competitive labour market. Being an integral part of vocational and technical education (Amoor, 2014), states that business education does not only prepare individuals for responsible citizenship, but it also imbues in them the capacity to generate new ideas that could foster economic growth. In the vein, where business education has not achieved this ideal, high rate of unemployment, weak economy and low technological development persist (Eze and Okorafor, 2016).

It has therefore become pertinent that business education students acquire the skills commensurate with the programmes of thecourse, to display the applications of professional skills in job market and self-reliance. Thus, business educators should judiciously follow or implement the programmes of business education using methods which enhance the acquisition of skills if students must be equipped for the

competitive market economy.Business educators seem to persistently use teaching methods which do notequip students with effective skills. Thus, in the view of (Gill, 2017) some teachingmethods do not promote meaningful learning as students remain passive in the classwaiting for knowledge to be poured into their brains.Such system of education iscontrary to the very principle of business education.

Hence, the need to adoptstrategies that could foster among students the acquisition of skills that will preparethem to be effective in the work place.According to ASTE (2016) teaching strategies are the most prominent amongseveral reasons, which impact on students' acquisition of effective skills needed to beprofessional and active participators in creative building. There is an assumption thatstudents learn with different styles, at different speed, different levels of priorknowledge and different environments when the subject matter is given variousteaching strategies (Godstime, 2016). The author defined teaching strategy as acomplex educational behaviour of a teacher in using methods, techniques, tools,discipline and communications in order to achieve goals.

Business education studentsneed skills in order to be effective in their workplace and business educationmust be taught with the right teaching strategies so as to inculcate the right skill andattitude to the students. In order to realise fully the potential contributions of skill acquisition,sustainable human capital development emphasis must be placed on the broad goalsof business education and business educators' approach towards achieving theobjectives. Thus, the instruction given in bits, units modules in stages, perhaps must be fused together to form a skilled performance. There are many processes of acquisition and development in achieving entrepreneurial skills.

Pleshette in Okoro and Ursula (2012) outlined the four main stages of acquisition and development of entrepreneurial skills, these are:

- Analyze and identify the current and foreseeable skill needs to business, in terms of management, administrative and technical skills and relative importance of these.
- Identify the entrepreneur's own personal goals, objectives and analyze and evaluate his/her own skills and resources in relation to these.
- Produce a realistic personal development plan for the potential entrepreneur
- Monitor on-going performance on follow-up of the entrepreneur once the business has started and progress made towards developing the new skills that

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had been previously identified as necessary for the success of the business. Barret (2008) also listed the following as skills required in entrepreneurship:

Technical Skills: These include writing, oral communication, monitoring environment, business management, technology, interpersonal, listening, ability to recognise, network building, management style, coaching and being a team player.

Business Management Skills: These include planning and goal setting, decision making, human relationship, marketing, finance, accounting, management, control, negotiation, venture, launch and managing growth.

Personal Entrepreneurial Skills: These include inner control discipline, risk taking, innovative, change oriented, persistent visionary leader and the ability to manage change. However, this involves the personal needs of the entrepreneur as well as helping employees' in new skills development which will be of immense benefit to the business.

Dreyfus Model of Business Skill Acquisition

The study of Business Skill Acquisition all over the world draws from the early works of Professor Stuart Dreyfus, a Mathematician and Professor Hubert Dreyfus, a philosopher, from their study of chess players and pilots. Briefly, the Dreyfus model posits that, in the acquisition and development of a skill, one passes through five levels of proficiency:

i.   Novice
ii.   Advanced beginner
iii.   Competent
iv.   Proficient
v.   Expert

The levels reflect changes in two general aspects of skill performance. One is a movement from reliance on abstract principles to the use of past, concrete experience as paradigms. The other is achange in the perception and understanding of a demand situation so that the situation is seen less as a compilation of equally relevant bits and more as a complete whole in which only certain parts are relevant (Benner, 1982; Ekong and Ekong, 2016).

i.   Novice*: In the novice level, beginners have no experience with the situations in which they are expected to perform tasks. In order to give them entry to these situations, they are taught about them in terms of objective attributes.

These attributes are features of the task that can be recognized without situational experience. Novice practitioners are also taught rules to guide action in respect to different attributes (Ekong, and Ekong, 2016).

The heart of the difficulty that the novice faces is the inability to use discretionary judgment. Since novices have no experience with the situation they face, they must use context-free rules to guide their task performance.

ii. **Advanced beginner:**The advanced beginner is one who can demonstrate marginally acceptable performance. This person is one who has coped with enough real situations to note (or to have them pointed out by a mentor) the recurrent meaningful situational components, called aspects. In the Dreyfus model, the term "aspects" has a very specific meaning. Unlike the measurable, context-free attributes or features that the inexperienced novice uses, aspects are overall, global characteristics that require prior experience in actual situations for recognition (Benner, 1982; Ekong and Ekong, 2016). An instructor or mentor can provide guidelines for recognising such aspects. While aspects may be made explicit, they cannot be made completely objective. Aspect recognition is dependent on prior experience.

The advanced beginner, or instructor of the advanced beginner, can formulate guidelines for actions in terms of attributes and aspects.

These action guidelines integrate as many attributes and aspects as possible, but they tend to ignore the differential importance. In other words, they treat all attributes and aspects as equally important.

iii. **Competent***:* Competent level typified the period by which the learner has been on the job two to three years. It develops when the learner begins to see his or her actions in terms of long-range goals or plans. The learner is consciously aware of these plans and the goals or plans dictate which attributes and aspects of the current and contemplated future situations are to be considered most important and which can be ignored. For the competent learner, a plan establishes a perspective, and the plan is based on considerable conscious, abstract, analytic contemplation of the problem (Ekong and Ekong, 2016).

The competent learner lacks the speed and flexibility of the learners who have reached the proficient level, but the competency stage is characterised by a feeling of mastery and the ability to cope with and manage

the many contingencies of the profession. The competent learner's conscious, deliberate planning helps to achieve a level of efficiency and organization. In some organizations, learners at this stage can benefit from decision-making games and simulations that give them practice in planning and coordinating multiple, complex demands. The competent level is supported and reinforced institutionally, and many learners may stay at this level because it is perceived as the ideal by their supervisors. The standardization and routinization of procedures, geared to manage the high turnover in most organisations, most often reflect the competent level of performance. Most in-service education is aimed at the competent level of achievement (Ekong and Ekong, 2016).

iv.   **Proficient***:* With continued practice, the competent performer moves to the proficient stage. Characteristically, the proficient performer perceives situations as a whole, rather than in terms of aspects, and performance is guided by maxims. Maxims are used to guide the proficient performer, but a deep understanding of the situation is required before a maxim can be used. Maxims reflect what would appear to the competent or novice performer as unintelligible degrees of the situation. Experience teaches the proficient performer what typical events to expect in a given situation and how to modify plans in response to these events (Ekong and Ekong, 2016).

Hence, because of the experience-based ability to recognise whole situations, the proficient performer can now recognise when the expected normal picture does not present itself, that is, when the normal situation is absent. The holistic understanding of the proficient performer improves his or her decision making. Decision making is now less labored since the performer has a perspective about which of the many attributes and aspects present are the important ones (Ekong and Ekong, 2016).

v.   **Expert:**At the expert level, the performer no longer relies on an analytical principle (rule, guideline, or maxim) to connect her or his understanding of the situation to an appropriate action. The expert performer, with her or his enormous background of experience, has an intuitive grasp of the situation and zeros-in on the accurate region of the problem without wasteful consideration of a large range of unfruitful possible problem situations. It is very frustrating to try to capture verbal descriptions of an expert performance because the expert operates from a deep understanding of the situation in that, as the

Dreyfus Model of Skill Acquisition posits, the expert performance is holistic rather than fractionated, procedural, and based upon incremental steps. First applied to nursing sciences, Dreyfus Model of Skill Acquisition has gained wider application in many other fields of studies (Sunkes,2003;Lester, 2005; Gobet and Chassy, 2008; Ekong and Ekong, 2016).

2.2.5   Teachers' Competence and Skills in Business Studies

Competency is one of the important fundamentals in teaching. It also determines the effectiveness of teachers during the teaching and learning process and performance of students. Teaching involves act of imparting skills or knowledge by person otherwise known as teacher to another person or group of persons called students or learners. Teaching according to Smith (2009), is defined as an academic process by which students are motivated to learn in ways that make a sustained, substantial and positive influence on how they think, act and feel.

A teacher is an individual who is trained in pedagogy and teaching areas of a particular subject to impart knowledge, skills and attitudes to students in an institution. According to Olaitan, Alaribe, and Nwobu (2010), a teacher is a person who transfers knowledge, skills and attitudes to someone in a school. Okute and Agomuo (2010) stated that a teacher is a facilitator of learning, who aids students to comprehend their full potentials educationally, emotionally, and socially in career choice and transition. Garba and Dambe (2007) defined a teacher as one who possesses practical and theoretical knowledge of his vocation, has clear understanding of the students he teaches, and ensures that he increases in the knowledge of his field at all times.

The ability of business studies teachers to teach students ICT depend on the level of ICT skills possessed. Skill is a person's ability in performing a given task well as a result of training and practice. Skill as viewed by Soanes (2001) is the ability to do something well especially, as a result of long practice. Obi (2005), defined skill as manual dexterity acquired through repetitive performance of operations. Osinem and Nwaoji (2005) stated that, skill is the proficiency displayed by someone in the performance of a given task. ICT skill is the ability required by business studies teachers for effective instruction to junior secondary school students.

Teacher who is the implementers of curriculum, plays a major role in teaching and learning process because, he is seen as a facilitator whose primary aim is to

harness necessary resources to achieve pre-determined objectives. Thus, Olatoye (2011) stated that teaching effectiveness is the extent that students' performance improves after a period of instruction in a manner that is consistent with the goals of instruction. Ajayi and Ekundayo (2011) noted that the extent to which the objectives of teaching are achieved determines teaching effectiveness, therefore teachers are expected to be more equipped.

Okoli (2012) stated that business educators are persons who impart knowledge necessary for skill acquisition in the business field. Thus, business educators that are capable of imparting the right skills to their students and achieving pre-determined objectives in teaching must have equipped themselves with certain degree of competencies. John (2006) observed that the quality of teaching usually determines the level of knowledge and skills acquired by a teacher coupled with the availability of relevant materials for instructional purposes.

Business studies teachers are expected to possess certain competencies which would assist them in discharging their professional duties appropriately. Competency reflects the ability to do something in contrast with more traditional ability to demonstrate knowledge. Competency can be described as sum total of all skills and knowledge needed by a teacher to be successful in teaching. According to Golman, Boyatzis and Mckee (2002), competency is the underlying characteristics of an individual that relate to effective or superior performance in a job. It is a skill that leads to superior performance.

Similarly,Chung, Stepich, and Cox (2006) stated that competencies for business education are those tasks, skills, attitudes and values that are deemed critical to success in life or in earning a living. Again, Olaitan (2003) noted that to be competent implies that an individual has acquired the knowledge, skills, attitudes and judgments which he requires in order to perform successfully at a specified proficiency level in a given work. This implies that competency in an individual holds the key to effectiveness in work. Business education teachers must note that competency is a critical aspect of employability in an occupation and each competency evolves from explicit statements of teacher roles within the profession (Okoli, 2012).

Business studies teachers are supposed to possess certain competencies for them to be able to achieve objectives already outlined in the business studies curriculum.Similarly, Cope (1991) stated that a competent teacher should be able to

apply the principles of the professional courses taken to the teaching and learning classroom process that will bring about meaningful changes in learners. Ekoh and Okwuanaso (2013) observed that there seems to be a gap between the actual pedagogical competencies possessed by business studies teachers and competencies expected from them. Observation on the performance of students in business studies in recent time showed that probably not all business studies teachers possess relevant skills in business studies.

Classroom instruction is another competency area that is important for the objectives of business education to be achieved in secondary schools. Business studies teachers in secondary schools are supposed to have acquired relevant skills in this area for them to be able to discharge their pedagogical duties as expected. Competencies possessed in this area would provide business studies teachers with the ability to use various methods, ability to communicate with students by giving explicit examples, ability to reinforce learning without encourage rote learning, ability to relate lesson to real life situation among others. Ekoh and Okwuanaso (2013) reported that business studies teachers have poor application of classroom instruction competencies.

This however, resulted to the poor performance of secondary school students in business studies in Oyo State. Study conducted by Saba, Ma'aji and Tsado (2012) on assessment of pedagogical skills in teaching electrical and electronic students in Northern Nigeria discovered that most teachers needed skills in delivery of instruction. It was observed that failure of business studies teachers to acquire relevant skills in this area would prevent them to provide adequate information needed by students to function effectively in the contemporary society. Practical demonstration of skill is another competency area. Most of the business subjects (business studies, introductory technology, Home economics and agricultural science) focus on skills acquisition, therefore any teacher that will teach any of the subjects must be able to demonstrate necessary skills both in the classroom and laboratory during teaching and learning process.

Business studies teacher who had acquired relevant competencies in this area would no doubt do the following; ability to hold practical session during teaching, ability to use available equipment and materials, ability to help students acquire manipulative skills and ability to outline require steps for acquisition of manipulative skills among others. Enemuo (2013) reported that competencies were highly needed

in the area of demonstration of practical skill in accounting for effective entrepreneurship.

Obunadike (2015) stated that practical subjects are supposed to expose students to real-practical trainingso as to strike a balance with or match the theory learnt in the classroom have become a myriad.The importance of the above is that business studies teacher needs to demonstrate all practical aspects of business studies. Furthermore, Ma'aji (2003) stated that for effective teaching of any skill activity, methods and materials play an important role in facilitating the leaners' achievement objectives. Information and Communication Technology (ICT) is another essential competency area that is required for effective teaching of business studies in secondary schools. With the emerging technologies, the teaching profession is evolving from an emphasis on teacher-centered, lecture-based instruction to student-centered and interactive learning environments. The benefits of ICT in education are well documented by many researchers such as Duffy (2006), Clarke (2008) and Akudolu and Ololube (2007).

ICT has been observed by scholar that when appropriately used, different ICTs help to expand access to education and raise educational quality. Equally, business studies teachers that would contribute positively to the development of their students must acquire relevant ICT skills that will make teaching to take place anytime, anywhere and anyplace. Ede (2015) in a study on competency improvement needs of metal work teachers in the use of computer numerically controlled machines tools in technical colleges in Oyo State, found that ICT skills possessed by metal work were not adequate to allow them use computer for teaching. It must be noted that lack of relevant ICT skills by teacher of any category could hamper the realisation of educational goals in the contemporary society.

Acquisition of relevant ICT skills by business studies teachers would provide opportunities for them to open Microsoft word application, ability to network computer to exchange files, ability to write educational programs, ability to select and evaluate subject specific education software, ability to develop computer assisted software, ability to develop software to teach a subject and ability to develop software to evaluate instruction. Furthermore, the research indicates that these competencies can be used to organise the numerous specific skills and knowledge available for building effective teaching and learning process. It is imperative on the part of

business studies teachers to acquire necessary competencies and skills needed for effective teaching and learning process.

Also, for the successful implementation of business studiescurriculum in secondary school.Effiong (2005) emphasised that ICT use in school curriculum depends highly on the teachers who will use ICT to teach the students. This requires that teachers should have the ability to incorporate ICT into teaching and learning. Okereke (2008) observed that application of ICT to teaching and learning makes instructions more effective and productive. In this regard ICT is viewed as innovations that enable business studies teachers to facilitate the teaching and learning of business studies.

2.2.6 Media in the Teaching and Learning of Business Studies

The Oxford Advanced Learner's Dictionary of Current Englishdefined media as "the main means of communicating with large numbers of people, especially television, radio, and newspapers." Thus, all the ways, channels, tools and aids through which information, instruction and or knowledge could be conveyed to learners in typical social and business studies, can be seen as instructional media. Instructional media, therefore, are such things (materials and equipment) that can help the teacher to communicate effectively needed knowledge or ideas to the students; such that at the end of such instruction, the student can be that which the teacher predetermined in his objective statement. Nwanna-Nzewunwa in Agbagbue (2018) defines instructional materials as those materials that are used to arouse students' interest. They are also called teaching aids, which brings life to learning.

Abimbade (2006) describes media as a broad-range of resources that can be employed to enhance effective and efficient communication in the teaching-learning process. Elaturoti and Oniyide (2003) observe these media resources as print material(books of various types), non-print materials, audio-tape recordings, video tape recordings, motion pictures, transparency, photographic slides, film strips, opaque still pictures, instructional posters, and models and Realia, computer programmes just to mention a few. The teaching and learning of business studies like any other commercial subjects has for long been facilitated through the use of some mechanical and electronic aids. Such aids can be visual, audio or audio-visual.

In business studies, the best way to present the learning experiences is from real objects to model, to diagrams and lastly by verbal description. Instructional

media facilitate teaching and learning activities and helps in achieving the lesson objectives. This widely depends on the availability and appropriateness of materials selected. Therefore, it means that learning resources are not selected haphazardly (Azikiwe, 2007). Indeed, resource materials to be used should be carefully selected by the teacher. Consequently, Business studies as a skill oriented subject requires the use of instructional materials and resources that will best captivate the learner. Onyeozu (2005) asserts that instructional media are materials and objects that aids the teaching and learning process. Instructional media are resource materials which help to facilitate teaching and learning.

In addition,instructional media means all available human and material resources which appeal to the learners' sense of seeing, hearing, smelling, tasting, touching or feeling and which assist to facilitate teaching and learning(Agbagbue 2018). Therefore, instructional media are channels of communication through which information passes for usage in educational situation in conjunction with the instructor. Agbagbue (2018) stressed that instructional media have emerged in a variety of resources, and equipment, which can be used to supplement or complement the teachers' efforts in ensuring effective learning. Resources and equipment such as typewriters, computers, projectors, laboratory equipment and multimedia equipment in general are all facilities that aid the teaching process for better understanding.

(Babajide and Bolaji, 2003 and Ibode and Olamigoke, 2018) identified different ty pes of multimediacommunication, some of which include computer hardware, computer software, public address system, slides, overhead projectors, opaque projectors, radio, interactive electronic whiteboard, videos, digital camera, cassettes, audiotapes, cassette recorders, flip, time sequence, stream-charts, diorama still motion pictures among others. Ubogu (2006) affirmed that multimedia resources facilitate access to all human knowledge, anytime, and anywhere in a friendly, multi-modal, efficient and effective way, by overcoming barriers of distance, language and culture, and by using multiple Internet-connect devices and this is an important requirement in teaching of business studies.

Business Studies is a subject planned to allow students acquire practical and vocational skills, attitudes, knowledge and competencies necessary for self-employment or function effectively in the society (Ogwunte and Okolocha, 2016). Business Studies remains a relevant subject in secondary schools that develops in the learner, competencies that are needed for survival in the business world (Wokocha,

Babalola and Brown, 2017). It is a subject taught at the basic education level of secondary education that is geared towards impacting the necessary business skill required to succeed in the world of business. Thus, it is necessary that the teaching process in business studies is made practical and attractive to capture the learner's attention.

Okoro and Iyke (2004) emphasised the necessity of the provision of adequate instructional facilities, shorthand studios, typing pools stocked with sufficient typewriters, computer laboratories and classrooms for effective delivery of business studies, but this seems not to be the case as studies show that facilities for teaching and learning are in dire need. According to Azih (2008), students offering business studies in schools find it difficult to acquire the needed skills and competencies as a result of lack of adequate resources in schools. There is actual lack of educational facilities and the few available ones are in a terrible state (Amanchukwu and Ololube, 2015).

2.2.7 The Benefits of ICT in Education

Brown (2009) explains that ICT is very crucial for the achievement of various educational technologies in terms of expanding citizenry access to education at all levels and improving the quality of teaching and learning. The uses of ICT are making major differences in the learning of students and teaching approaches. Schools in the Western World invested a lot for ICT infrastructures over the last 20 years, and students use computers more often and for a much larger range of applications (Volman, 2005). Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use.

Kulik (1994) conducted research on various studies in the United States, the result showed that students who used computer tutorials in mathematics, natural science, and social science score significantly higher on tests in these subjects. Students who used simulation software in science also scored higher. The findings also indicated that primary school students who used tutorial software in reading scored significantly higher on reading scores. Very young students who used computers to write their own stories scored significantly higher on measures of reading skill than the students who did not.

Moreover, students who used word processors or otherwise used the computer for writing scored higher on measures of writing skill. Furthermore, the use of ICTs in

education also shifts the learning approaches. Bransford, Brown, and Cocking in Volman (2005) stated that there is a common belief that the use of ICTs in education contributes to a more constructivist learning and an increase in activity and greater responsibility of students. This limits the role of the teacher to supporting, advising, and coaching students rather than merely transmitting knowledge. The gradual progresss in using computers changes from learning about computers, to learning computers and finally to learning with computers (Volman, 2005).

On the other hand, teachers' reluctance to adopt innovations need to be seen in thecontext of existing technology and commitments. Fullen in Watson (2001) states that change or improvement can happen at schools if teachers understand themselves and are understood by others. For instance, many teachers are currently not in a position to make informed judgements on ICTs to support their teaching goals. Clearly a variety of factors still do make using ICT in the curriculum problematic (Watson, 2001). Because of this, the influence of ICT did not bring revolutionary changes at schools. For instance, the National ICT survey in the Netherlands shows that most primary-school students use computers less than once a week and there are still many secondary school teachers who do not use ICT at all (Volman, 2005).

Most often, they use computers for drill and practice and word processing. In recent years however, there has been a growing interest to know how computers and internet can best utilise to improve effectiveness and efficiency of education at all levels and in both formal and non-formal settings. As there is a shift of theories explaining learning processes, ICTs become hand maiden for learning activities. Voogt (2003) description on the major roles, distinguished ICTs as an object for study, an aspect of a discipline or a profession, and a medium of instruction. As a medium of instruction, ICTs fit to realise and implement the emerging pedagogy of constructivism (Davis, 1997; Office of Technology Assessment, 1995; Panel on Educational Technology, 1997; Watson, 1996) in Voogt (2003).

Moreover, Voogt (2003) differentiated between traditional learning setting and constructivist approaches. The former considers learning as transmission of knowledge to students, which is the sole responsibility of the teacher. On the other hand, the constructivist approach considers learning as authentic and learner centered. ICT, the computer for example is a great help in the constructivist approach, where one can design simulated and individualized learning environments to students. ICTs are exerting impacts on pedagogical approaches in the classrooms. Their contribution

to changes in teaching practices, school innovation, and community services is considerable.

2.2.8 The Use of Computer in Teaching and Learning of Business Studies.

A computer is a device or machine that performs calculations, process data and store information which can easily be retrieved when required (Ofodu 2007). Computer has been used in the developed countries since 1980s. It has potential for arousing students' interest, motivation and achievement (Yusuff and Afolabi, 2010). To Microsoft Encarta Premium Suit (2004), a computer is electronic device that accepts, processes, stores and output data at high speeds according to programmed instruction. The introduction or application of computer in industries, universities, homes, business ventures and so on andincrease in computer application in most of our daily activity have made it mandatory to search for the basic knowledge of computer.

Education has been greatly revolutionised as a result of the advent of technology (Ibode and Olamigoke, 2018). There has been increasing interest in introducing innovations such as Information and Communication Technology(ICT) into the teaching and learning of business studies.ICT involves the use of computers and other electronic device to process information.Ibode and Olamigoke (2018) stated that ICT refers to a total range of technologies involved in the processing of information and electronic communicationwhich can be handled with skills and expertise, for effective achievement and realization of its potential in education.

Ofodu (2007) sees ICT as electronic or computerized gadgets, assisted by human and interactive materials that can be used for a wide scope of educating and learning just as for private business. ICT refers to processing, sharing of information and having access to data effortlessly utilising a wide range of electronic gadget which incorporates all technologies for the manipulation and communication of information.Brown (2009) explains that ICT is very crucial for the achievement of various educational technologies in terms of expanding citizenry access to education at all levels and improving the quality of teaching and learning.The uses of ICT are making majordifferences in the learning of students andteachingapproaches.

Information and Communication Technology has changed the methodology of teaching business studies in schools. Teaching and learning has been changed from traditional chalkboard to electronic learning requiring ICT skills for teachers. Nyiahule (2006) observed that teachers now can talk less, do less active and achieve more. He also, added that teaching and learning have shifted from teacher centered to material centered, where the teacher only guides students to use available materials to achieve learning objectives. ICT is a broad range of activity and equipment including

all the tools, applications and information which are available and accessible through computer. Scott (2004), explained that ICT is concerned with the storage, retrieval, manipulation, transmission or receipt of information electronically in a digital form.

Computer in social science education has two main applications which are teaching machine, teaching machine presents the instructional materials to the students and interprets his response and works with students at his own pace (CAI). Computer Assisted Instruction packages can be used to teach all subjects including sciences. According to Scott (2004), CAI can be used to provide opportunities for students to learn using drill and practice, tutorials, games and simulation activities, animation and many others. The second major use is known as Computer Managed Instruction (CMI), this is used as an assistant and to the teacher in managing the educational process by assessing the student's capabilities and prescribing a course of instruction.

2.2.9 Application Areas of Computer Graphics

With the advent of computer technology, computer graphics has been widely adopted. Traditionally, computer graphics were used to visually represent realistic images in a computer system. Computer graphics are now used as a communication medium to express ideas that either cannot be communicated using words or are easier to understand when presented using visual imagery. These days, computer graphics are used in many facets of everyday activities to improve the quality and speed of the user's work. This increased efficiency has been aided by the rapidly increasing power andflexibility of consumer graphics hardware.

Today's standard computer has the capability to render very complex 3D scenes. Through the effort of researchers and developers who design efficient algorithms, users are now able to carry out a wide range of visualization tasks (Ganovelli, Corsini, Pattanaik and Benedetto, 2015). Most educators with non-computer science background lack education or training to use technology effectively in teaching (Mumtaz, 2000).

Benefits of Computer Graphics in Education

Some of the major benefits of computer graphics education are:

•   It allows virtual experiments to be conducted on virtual models that obeys the laws of nature. An example is the L-Studio or V-Laboratory for modeling and

visualizing plants, developed by Prusinkiewicz (2004) and his research group, which makes it possible to simulate plant development with unprecedented biological and visual fidelity. Such tools can be used to teach difficult concepts and working principles with ease.

- It allows users to create simulation models of natural systems in computational physics, chemistry and biology; human systems in economics, psychology, nursing and social science; and new technologies to study systems and observe behaviors. (Eylon, Ronen, and Ganiel, 1996; Jimoyiannis and Komis, 2001; and Konieczny, 2016).

- In the plan update from U.S. Department of Education (2017), it discusses benefits of using new technology in education. According to this report, using digital technology including media rich contents enhance interaction and collaboration among educators and learners. It improves learner's performance and increases learner's accountability. It extends learning beyond classrooms through self-paced education. Students are effective learners when they can learn at their own pace and when they can access digital contents at their convenience. It also helps working professionals to learn and update knowledge during their leisure time.

Computer Graphics as Analysis Tool

Due to the proliferation of data (known as big data) in recent times, resulting from the increased use of online websites and social media, computer graphics are being used more frequently in information visualization and data analytics. Information visualization is the study of the visual representation of large-scale collections of non-numerical information, such as files and lines of code in software systems and the use of graphical techniques to help people understand and analyze data. The field of information visualization focuses on ways to convey abstract information. Using the improved processing power of computers, users are able to use information visualization to identify and communicate relationships among data. Data analytics is now an indispensable part of all applied research and problem solving in industry.

The most fundamental data analysis approaches are visualization (histograms, scatter plots, surface plots, tree maps, parallel coordinate plots, etc.), statistics (hypothesis test, regression, principal component analysis, etc.), data mining, and machine learning methods (clustering, classification, decision trees, etc.) Information

visualization, or visual data analysis, is dependent on the cognitive skills of human analysts but it allows for the discovery of interesting patterns among data. Analysts do not have to learn any sophisticated methods to be able to interpret the visualizations of the data (El-Assady, Sevastjanova, Keim and Collins, 2018). Visualization of large text data has applications in domains like stock exchange, ecosystem modeling, and space research.

Challenges of Computer Graphics in Education

Currently, computer graphics is one of the key components of digital information. Computer graphics have the potential to transform the education system into a modern computer-assisted learning system. Some of the challenges that system reformers faces are outlined below:

- The reluctance of educators to adopt new technology (Mumtaz, 2000).
- The cost associated with updating software and hardware (Ali, 2011).
- Rapid technological development makes it difficult for educators to keep abreast of changing tools and methodologies (Ali, 2011).
- A need for course content to reflect current information.

2.2.10 Computer Graphics Instructional Mode

As a result of academic programme in support of a diversity of sound and diagram, it is noted that teaching and learning will become more lasting, enjoyable and effective. For these reasons, the development of a software that is supported by visual and audio instructional materials, such as CAI will draw the attention of students, promote their interest, motivate them, interact, as well as provide improvement in the teaching and learning process. In the present day, students are conversant with visible gadget such as television, computer, video and internet.

It is not always possible to draw these students' interest with the aid of the usage of traditional method that was used in the past. Due to technological expansions that came into existence towards the end of the 20th century, a large distinction came about among the advert of knowledge at schools and the methods of receiving knowledge in the society. Students receive a variety of information through visually enhanced means like computers and televisions that are utilised in the day to day activities. The method of acquiring knowledge by students through numerous audio devices are many, hence, it becomes hard to teach with conventional methods (Cepni,

Ozsevgec and Saydkan, 2004). These days, it is evident that graphic resources are utilised in all areas of studies.

Computer graphics instructional mode performed massive roles in students' interest and increase their contribution for educational purposes (Brooks, Nolan and Gallagher, 2001). There was a considerable amount of quantity of analysis on the method of acquiring knowledge through text and graphics (Willows and Houghton, 1987). There is a universal view on the beneficial involvement of graphics with the connected text information for the readers (Morrison, Ross and Kemp, 2001). Computer graphics instructional modes are a good supply of pictorial message and may offer the textual message with efficiency (Levie and Lentz, 1982).

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Due to instructional materials which are supported with image, sound and animation, instruction becomes effective, permanent, fun and motivating. (Demirel, 2004). Students are affected greatly with the aid of visual information than aural ones (Halis, 2002). Improvements in technology convey new academic and educational opportunities collectively. Frenzel (1980) stated that it is the method by which printed and graphic information is displayed in a rational series to students through the computer. The computer represents an audio-visual tool. The students learn by

watching the graphics information put on show. The main benefit of the computer over audio-visual gadgets is the automated interplay and comments that the computer makes available. The individual student's progress will determine the numerous ways by which the course material will be taken. The mode of instruction which entails learners' interaction directly with the use of computer is described as CAI (Sangodoyin, 2011)

Graphics presentation plays a significant function in instruction. Further to pictures, computer graphics also involve the usage of display formatting topographies such as boxes, darts and drawings to emphasize the concept. This non-verbal mode of instruction helps to build comprehension in areas that are hard to teach with the aid of different instructional strategies. Sound in a program can focus, prompt, or reinforce students and hence improve instruction. At amore sophisticated level, some CAI programme includes speech synthesizers that produce word. Synthesizers are especially used with software for the very young or handicapped users. Computer graphics and sound imbue motion and animation into a programme.

Computer graphics capture the attention eye of the learner by assembling the modules spatially and that they thereby use specific capacities of human visual methodology for opinion of spatial configurations (Schnotz, 1993). Educational material includes writtentexts and graphics such as charts, graphs and diagrams (Schnotz, 1993). The purpose of computer graphical displays in text is not perpetually an insignificant accent to texts or to decorate the text, but to serve as fascination to the readers. Graphics ought to show abstract concepts, bring together compound arrays of information, incorporate new information into current knowledge structures, assist in the remembering of statistics, and nurture the course as of thoughtful and problem-solving that are active aids for learning (Schnotz, 1993).

Numerous studies have revealed that computer graphics can play a useful part in teaching, mostly if the stress is given on the descriptive role in exhibition (Levie and Lentz, 1982; Winn, 1987). Computer graphics are used to occupy students and are an important aspect of numerous graphics, they are unconscious of the paybacks of imaginings and consequently give a little attention to graphics involved in texts (Schnotz, 1993). Comprehension of computer graphics is a method of creating meaning, that students get in an active processing framework and the previous knowledge with the stimuli (Schnotz and Kulhavy, 1994). Task anticipations and skill give a clear dissimilarity on how the persons learn (Schnotz and Kulhavy, 1994).

Graphics can perform numerous roles like portraying data, explaining complex relationships, bringing together information, improving memory for facts, and inducing problem solving. These functions are not integral in graphics, though it results from the way in which such graphics are processed cognitively (Schnotz and Kulhavy, 1994).

2.2.11 Animation Method

Animation is a way of developing a motion picture using a series of drawings, computer graphics, and photographs of objects. It is a technique of photographing successive drawings or positions of puppets or models to create an illusion of movement when the film is shown as a sequence. Pilling (1997) defines animation as "created performance", that is carefully worded to establish validity and secure resources for an animation program or class. According to Mayer and Moreno (2002), animation refers to a simulated motion picture depicting movement of drawn (or simulated) objects or moving something that cannot move by itself.

Schnotz and Banner (2003) describes animation as the rapid succession of pictures indicating a series of slides, appearance and disappearance of iconic element continually. In educational terms, animation is a technique of visualization. Sanchez, Canas and Novak (2010), describe educational animations as animations produced for the specific purpose of fostering learning. The popularity of using animations to help students understand and remember information has greatly increased since the advent of powerful graphics-oriented computers. This technology allows animations to be produced much more easily and cheaply than in former years. Teachers are no longer limited to relying to static graphics but can readily convert them into educational animations.

According to Thomas and Israel (2014), animation teaching is a device that has the features of both audio and visual representations that are used in the teaching/learning process for effective dissemination of knowledge. Thus, animation teaching enhances learning of service subject. Lin (2011) ascertained that animation has been used in various discipline to deliver instructional materials that is hard to present alone using static visuals or that contains content that is highly abstract or invisible to human eyes. Thus, in computer based instructional environment, animation is typically used due to its inherent characteristics that facilitate the teaching and learning processes. According to Aksoy (2013), animation has three characteristics, namely; the picture; display of movements and simulation.

Animation corresponds to the context of the topics, otherwise it becomes distracting and the intended objectives of using it defeated the study therefore centers on animations as the rapid display of sequence of pictures on computer screen that has the potential to provide feedbacks in students' achievements. Animation history draws back to 1880s. The first animation films date back as early as 1910 when cartoon short began showing in theatre. Since then, numerous animation films have been released expanding into more complex films that require a breadth of different from the previous cartoons to motion animations. Algilasi (2010) maintains that most of the first films were French and released in America. The Warner brothers produced some of the most notable motion pictures of the 20th century.

The continuous development of technological inventions allowed animators to excel in this field. Hoban and Nelson (2010) observed that the worldwide explosion in personal digital technologies offers increasing opportunities for students in primary or secondary schools to create their own digital media. Waldrip, Prain and Carolan (2006) have attributed this exponential growth in personal digital technologies with a growing body of research which suggests that getting students to create a multimodal representation of a science concept is a good way to enhance learning. A representation is a sign that stands for something else and can be expressed using different modes – by texts, photographs, sketches, voice, numbers, graphs or models. It is through developing a sign and thinking about its meaning that students develop a better understanding of what it is meant to be representing.

Importantly, research (Hoban and Nielsen, 2010) have shown that constructing a representation, helps students to make meaning of a science concept and this is often preferential to students copying an expert-generated representation from a textbook, which is a common practice in classrooms. Rieber (1991) posited that animations assist students' learning motivation. David (2015) asserted that a successful animation syllabus is interdisciplinary and encourages students to develop effective skills and practice interactive activities. Wu and Shah (2004) observed the neglect of determining the impact of animation to students' mind, thus understanding the information of the animation may differ, and it depends on the sex and the spatial visualization understanding ability.

Classifications of Animation Technique

Scholars (Anderson, 1993; Mayer, 2001; O'Day, 2007 and Rahmat, 2010)hold the view that there are three main types of animation techniques: Traditional animation, Stop motion and Computer animation.

1. **Traditional Animation**: Films produced this way are originally drawn on paper. Each frame slightly differs from the one before it to create the illusion of motion. The drawings are photocopied into transparent acetate sheets called cells, and are filled in with paints of assigned colours or tones. Therefore, this technique is often referred to as paper or cell technique. This method first appeared in the 20th century. By the 21st century, photographed or scanned frames replaced hand drawing film frames (Anderson, 1993).

2. **Stop Motion:** Animators physically manipulate actual objects and photographing them one frame of film at a time to create the illusion of movement. There are many different types of stop-motion animation including puppet animation, clay animation, cut out animation, graphic animation, etc.

3. **Computer Animation**: Computer animation creates the illusion of movement through a succession of computer-generated still images. This digitally created animation encompasses a variety of techniques including 2D animation and 3D animation. This animation takes less time than previous traditional animation.

Computer animation holds a great potential as a tool for creating multimedia instructional environments. Instructors can use computer animation to demonstrate learning materials visually as they want and they can control every aspect of the animation. According to Mayer's Cognitive Theory (2001), the computer is a system for delivery information to students. The instructor's role is to present information, as words or pictures, or both, and the learner's role is to receive the information. Adding pictures, such as animation, should deepen the meaning of the presented information and give it a physical translation. In this study, computer animation called animated-media instructional strategy is used as treatment to experimental group.

Animated-Media Instructional Strategy

Animated-media instructional strategy is a form of Computer Aided Instructional Package (CAIP) that implies application of computer software package in instructional process. It is the integration of hardware and software (Abdusalam,

2007). It represents some aspects of reality that one is unable to present directly to the learners because it presents image, sound and action. According to Nsofor and Ala (2013) any instructional process that evokes the involvement of as many of the human sensory organs tend to facilitate the permanency of learning thereby, the ability to remember tasks or materials learnt concepts is inevitable. Thus, this study incorporated the use of computer graphics and animation instructional strategy in teaching and observed its impact on students' achievement and acquisition of skills in business studies at secondary schools.

Advantages of Using Animation in Teaching

Tversky and Morison (2002) posit that animation with graphic convey spatial information better than text alone because they represent space with space. Weiss, Knowton and Morison (2002), uphold that animations have five functions, namely; connection; attention gaining; motivation; presentation; and clarification. Stith (2004) positioned that these animations provide a valuable ways of communicating dynamic, complex sequences of physical events effectively better than graphs. Additional advantages of animation were reported by Agina (2003) to include;

1.   **Skill and Ability Improvement:** The interactive animation takes less time to teach students complex concepts and facilitate faster learning of difficult topics. Using an interactive animation solves the problem of the imagination-skill in education and training.

2.   **Interactive:** This is a mutual action between the learner, learning system, and learning materials.   Students learn faster and develop positive attitudes towards it.   When using audio and video techniques are employed, the interaction gets more motivating to students.

3.   **Engagement:**   Interactive learning with live-action animation, simulation, video, audio, graphics, feedback, expert advice and questions and answers maintain students' interests and reinforce skills. Through continual practice, learning is absorbed and integrated into daily performance.

4.   **Motivation:** Since animation is an inspired and interactive way for flexible education and training, students will be more motivated to learn.

5.   **Immediate Feedback:** Students get an immediate feedback from the animation system, which will enhance their skills and abilities.

6.   **Flexibility and Practicability:**   They aid students through attracting and holding their attention. Animation aims to reduce students' time in learning,

more practical and task-oriented. It leads to greater long-term memory retention (O'Day, 2007). According to Ainsworth (2008), effective account of learning with animations suggests that, learners may often report increase in satisfaction and motivation. Ling (2011) states that animation has been used in various disciplines to deliver instructional material that is hard to present alone using static visuals or that contains content that is highly abstract to human eyes. Animation provides feedback in various forms that may be both entertaining and motivating to learn stringing for the correct response. Aksoy (2013) maintains that computer technique enables higher academic achievement in comparison to traditional teaching methods. Gupta and Lata(2014) reported that students perform better in recall scores when animation and narration were used in teaching.

The Effect of Animation

Recent advances in instructional technology have stimulated research interest toward looking at the effect of various techniques on Computer-Based Instructional (CBI) development. Among all advances, animation has drawn much research attention due to its appealing means of instructional delivery can accommodate. Park and Gittelman (1992) defined animation as "artificially generated movements of pictures or graphics in computer displays, resulting in apparent motion". A major function of animation is to focus learners' attention by employing special effects either to highlight the importance of a topic or to demonstrate the beginning or ending of a section.

Animation also has the beginning or ending of a section. Animation also has the potential to provide feedback in various forms that may be both entertaining and motivating to learners striving for a correct response. The most powerful and direct application of animation is to use it to present instructional materials that are dynamic in nature or abstract to understand or physically invisible, such as flow of blood in a human heart or concepts in physics. (Mayer and Anderson, 1995; Dwyer and Dwyer, 2003). Previous research on animated instructions has not been encouraging.

Wilson and Dwyer (2001) in their study investigating the effect of dynamic visual on students' achievement of specific types of educational objectives determined that animation failed to optimize achievement of the more complex types of learning outcomes. Lin, Chen and Dwyer in Dwyer and Dywer (2003) compared the effects of

static visuals versus computer-generated animation on learners' comprehension and retention of a content-based lesson in a computer-based learning environment for learning English as a Foreign Language (EFL). The results indicated that the animation group out-performed the static visual group in only one of the four tests. It is therefore a fruitful effort or exercise to look at the effect of animation instructional modes on Business Studies at the Junior Secondary School level.

2.2.12 Computer Animation Instructional Mode

Computer animation instructional mode is a way of developing a motion picture using a series of drawings, computer graphics, and photographs of objects. It is a way of photographing sequential diagrams or locations of puppets or replicas to create a phantasm of motion once the film is displayed as a series. Pilling (1997) defines animation as "created performance," that is carefully worded to establish validity and secure resources for an animation program or class. Mayer and Moreno (2002) refer to animation as a mimicked film portraying development of drawn (or replicated) objects or as an image in motion or moving something (text and image) that cannot move by itself.

Schnotz and Bannert (2003) explain animation instructional mode as the speedy series of pictures demonstrating a sequence of slides, look and disappearing of iconic element constantly. In educational terms, animation is a technique of visualization. Sanchez, Canas and Novak (2010) define educational animations as animations produced for the unique aim of nurturing students learning. The acceptance of using animations to help students understand and remember information has greatly increased since the advent of powerful graphics-oriented computers.

This technology allows animations to be produced much more easily and cheaply than in former years. Previously, traditional animation needed specialized labour-intensive methods that were both time-consuming and pricey. In contrast, software is now easy to get to which makes it viable for individuals to author their own animations devoid of the need for professional proficiency. Teachers are no more depending on static graphics but can willingly modify them into academic animations. According to Thomas and Israel (2014), animation teaching is a method with the characteristics of both audio and visual representations that are present in the teaching and learning process for operative spreading of information.

Lin (2011) ascertained that animation has been used in different discipline to supply teaching aids which is difficult to present alone with the use of still images or that comprises content that is notably abstract or unseen to human eyes. Thus, in computer based instructional surroundings, animation is normally used as a result ofits intrinsic characteristic which enhances the teaching and learning processes. According to Aksoy (2013), animation has three characteristics, namely; the picture, display of movements and simulation. Animation corresponds to the context of the

subjects, in another case, it becomes disrupting, and the proposed anticipated objectives of using it is defeated. The study therefore centers on animations as the speedy show of series of pictures on computer screen that has the potential to provide feedbacks in students' achievement, interest and retaining in learning.

Animation history can be dated back to 1880s. The first animation films were shown in 1910 when cartoon shots started showing in theatres. Since then, various animation films were launched, expanding into more complex films that require a breadth not the same from the former cartoons to motion animations. Algilasi (2010) retains that most of the first films were French and released in America. The Warner Brothers produced some of the most extraordinary motion pictures of the 20th century.

The continuous development of technological inventions allowed animators to excel during this field. Hoban and Nielsen (2010) perceived that the worldwide explosion in private digital technology, provides increasing possibilities for students in primary or secondary schools to make their own digital media. Waldrip, Prain, and Carolan (2006) attributed this exponential growth in personal digital technologies with a growing body of research which suggests that getting students to create a multimodal representation of a science concept is a good way to enhance learning.

A representation is a symbol which represents one thing else and may be expressed with the use of diverse modes: by text, photographs, sketches, voice, numbers, and graphs. It is by developing a signal and puzzling over its meaning that students improve on a more robust knowledge of what it means to be a representative. Hoban and Nielsen(2010) showed that constructing a representation helps students to make meaning of a science concept and this is often preferential to students copying an expert-generated representation from a textbook, which is a common practice in classrooms.

Rieber (1991) posited that animations assists students to apprehend abstract and invisible processes and can improve students' learning motivation. Taylor and Pearsons (2011) asserted that a successful animation syllabus is interdisciplinary, and encourages students to improve effective skills and practice interactive activities. Wu and Shah (2004) perceived the neglect of finding out the impact of animation to students' mind, thus, the meaning of the information of the animation could vary, and it hinges on the gender and the spatial visualization understanding capability. The use

of animations is intensely stimulated as a modern, constructivist and students-centered substitute to the conventional teaching methods in many countries.

Studies from many countries have proven useful effects, which the use of diverse and innovative methodologies and visualization technologies may have to students understanding of central scientific concepts. Estonia animations have been revealed to be helpful in science lessons in Estonia (Soika, 2007). The use of activating and innovative learning technologies in Estonia is also fortified by the new national curricula for basic school and gymnasium. In these official documents, learning is stressed as a period by which a student unreservedly constructs personal knowledge in nonstop dealings with his or her social environment.

2.2.13 Concept of Interest in Business Studies.

Interest can be referred to as a kind of consciousness accompanying and stimulating attention, a feeling, pleasant or painful aspect of a process of attention, and as identical with attention to itself (Schiefele and Krapp, 1996). Hence, it could be believed, "I attend to what interest me". Most people learn what they have interest in (Adewusi, 2001). The term is also used to indicate a permanent intellectual disposition (Schiefele and Krapp, 1996). Interest is the concentrating of the sense organs on or paying alertness to individuals, action, condition or item. It is an end product of information instead of gift. It might either bring result or cause motivation.

Also, Interest can be defined as a pre-conceived of one's insights, meaning the part of the world one is most possible to grasp constantly (Mc Clnermey, Dowson, Young and Nelson, 2005). The feeling of preference could be short-term or long-term. Therefore, interest is not a result of human nature, but can be formed and cultivated, learned and developed. Interest means preference to involve in a particular activity instead of others. When one develops interest in a particular activity, he or she is prone to attend to it. Interest also means a state of wanting to learn or know about someone or something.

Aggarwal 2009 emphasised that the main requisite for skill learning is interest. If teachers put themselves in the place of students, they would realise how difficult it is tomaintain interest in learning something which seems to bear no relation to one's life. The researcher stressed that effective learning takes place when interest is caught and retained. It requires that business studies teachers use every technique in their

capacity and reach to maintain and sustain interest until the desired level of acquisition of skills in business studies is attained.

McClnermey, Dowson, Young and Nelson (2005) concluded that real interest is the completion of the identification through action of the self with many item or plan. They also explained that this is very important due to the requirement of that item or plan, for upkeep of a self-initiated action.   Interest according to the researchers, is a call for the reality that a course of action, a profession or search engages the authority of an individual in an intensive good way. In line with this definition,   interest   for   that   reason appears mainly useful as the association among identification, absorption and the upkeep of a self-initiated activity which offers an uncomplicated way to examine class room activities.

According to Schiefele (1992), interest is a content-specific motivation of characteristics collection of intrinsic feeling-related and value-related initiatives with an organized force. Schiefele (1996) has distinguished two conceptions of interest: character and situational interest. Individual interest is understood as a long standing direction of a person towards a sort of object, activity or area of information. Individual interest means a comparatively steady evaluative positioning towards definite domains (Schiefele,1996) or towards precise classes of events or ideas (Krapp, 2004). This can manifest in behaviours such as highly focused attention, display of pleasure and a high degree of persistence in a task.

Situational interest means a condition of interest formed externally as a result of on-going interactions between a person and the environment. Situational interest has brief-term impact and a lot of emotional in nature while individual interest is more stable. Individual and situational interests are quite different but seem to interact and influence each other's development. Individual interest is shown in people that search for information themselves by using personal skills to obtain the knowledge and can endure on their own when faced with difficulty. Chen and Darst (2002) discovered that individual interest helps a learner to focus on a subject whereas, situational interest maintains motivation even when individual interest is absent.   Forming situations that allows students to form questions by themselves which assist in making them fascinated (Hidi and Renninger, 2006).

Students are more involved in academic activities, attentive and perform excellently when they develop interest in a subject (Schunk, Pintrich and Meece,

2008). Ughamadu and Okoye (2006) stated that, a learner is interested in a particular activity worthwhile tohim and is for his advantage. In this way, a lesson may be amusing without really being interesting to the learner. Interest in a specific field of study determines the performance of students. When a student exhibits interest in business studies, there is the propensity for that students to achieve success educationally. However, when there is absence of interest in business studies this might bring a restraint to operative teaching and learning situations. Interest means the choice of stimuli of paying attention to a particular thing, especially in business studies (Adewusi, 2001).

When training students in skills in business studies, maintaining interest is one factor that the instructor considers, as lack of interest will put the learner off. Thus, it is likely that things can merely not be detected and attended to except there is presence of interest in an object, event or idea. Learners who are interested in a subject may likely concentrate in that subject because they have the perception that it makes a change to them. Their level of attention will be high and their satisfaction will be extraordinary.

2.2.14 The Concept of Self-efficacy

Self-efficacy is reported to be related to achievement and retention mostly in academic areas comprising the sciences. Self-efficacy is someone's self-judgement of individual abilities: to involve and effectively carry out definite responsibilities at selected levels; to use more effort, and endure during difficulty (Bandura, 1994). Fend and Saheed (2005) in their study of the effects of self–efficacy on achievement, submitted that it has positive effects on academic attainment in science.

Self-efficacy is "beliefs in one's abilities to establish and perform the courses of action required to yield given attainments" (Bandura, 1997). This concept is linked to the beliefs of individuals about their ability to finish a precise task (Bandura, 2001). Though, the information sources may also have other origins when it comes to online contexts. The variables that have an impact on self-efficacy in online contexts may come both from preceding successes in online systems, nervousness to technology learning, feedback from the teacher's regularity of a pre-training course (Stone, 1993).

Self-efficacy has four sources approaches to build self-efficacy in numerous methods; they are: enactive mastery experience, vicarious experience, verbal persuasion and physiological and emotional states (Bandura, 1997). Enactive mastery

experience is the most significant, which is referred to as people's experiences with attainment or failure in previous situations.Facts collected as the outcome experiences at that time will be internalized. Past successes enhance self-efficacy and frequent failures depress it.

In a vicarious experience, people equate themselves to age group of the same ability and intelligence. Observing peers get to the top, increases such observers' self-efficacy and seeing them unsuccessful depresses it. When observers are exposed to numerous prosperous role models, their self-efficacy increases (Bandura, 1997). Likewise, belief in one's ability can be strengthen when encouraged by the achievement of a peer at a task.Verbal persuasion attempts to persuade people, who can also disbelief their abilities, that they already acquire the skills for them to succeed at a certain task. In teaching, teachers provide verbal persuasion in the form of verbal response, assessment and reinforcement. Persuasion should be practical, genuine and a reliable source. Instructors might increase self-efficacy with genuine communication and provide feedback to monitor the students over the task or inspire them to give satisfactory work.

Emotional state – An optimistic disposition may enhance someone's opinion in self-efficacy, whereas tightness may deteriorate it. A definite state of emotive inspiration may form an invigorating emotion that could make contribution to robust permanence. Teachers should assist by decreasing traumatic conditions and nervousness environment events such as examinations or presentation. In line with Bandura's theory, individuals who have high self-efficacy believe they can do well and even view tough tasks as one thing to be perfect in preference to one thing to be evaded.

Bandura (1997) discovered that an individual's self-efficacy plays a significant role in how desires, responsibilities, situations and demanding situations are handled. Schwarzer and Schmitz (2005) in an additional study on the theory and research in self-efficacy indicate strong competence of the differences in individual feelings, thinking and action. People with high sense of self-efficacy decide to do tasks that are more thought-provoking and are imaginative (Bandura, 1977).

An individual with a high sense of self- efficacy:

- Attempts additional thought-provoking tasks
- Persists longer at challenging tasks
- Exerts extra attempt in achieving the task

- Develops more interest in the actions in which they partake
- Forms a tougher sense of obligation to their interests and actions
- Recuperates from obstacles and dissatisfactions quickly.

An individual with a low self-efficacy:

- Does not exert himself or herself
- Avoids challenging or difficult tasks
- Believes that challenging tasks and circumstances are beyond what they can overcome
- Accepts own feelings and adverse outcomes
- Discourages and gives up in own abilities
- Makes self-limiting decisions that fore close chances despite the fact that the person has the essential skills to be successful (Lucas and Cooper, 2005)

The general view through research studies that students with high self-efficacy showed better academic performance than those with low self-efficacy, has never been conclusive; hence the need to look at this important psychological construct as it relates to academic performance and acquisition of skills in business studies. This is because confident students who are likely taught by efficacious teachers will naturally take control over their own learning experience. They are likely participate in class activities and preferred hand-on learning experiences, while those with low self-efficacy definitely shield away from academic interactions.

Self-efficacy has been reported in past studies (Bandura 1997; Schwarzer and Schmitz 2005) that students who have high self-efficacy do better in academics than those who have self-efficacy that is low. Therefore, it is very important to carry out a study to address the extent to which self-efficacy, computer graphics and animation instructional modes can determine students' learning outcomes in business studies. According to Sanchez and Roda (2008) "levels of self-efficacy determine the degree of academic achievement" The students' differential academic performance in business studies based on self-efficacy can be assumed to be a matter of personality factor.

According to Bandura 1997, a person's attitudes, abilities and cognitive skills comprise what is known as the self-efficacy. This system plays a major role in how we perceive situations and how we behave to response to different situations. Self-efficacy plays an essential part of this self-system. In general, self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to

manage prospective situations. In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. Bandura described these beliefs as determinants of how people think, behave and feel (Bandura, 1995).

Judgements of self-efficacy are generally measured along two basic scales: magnitude and strength.

- Self-efficacy magnitude measures the difficulty level an individual think is required to perform a certain task.
- Self-efficacy strength refers to the amount of conviction an individual has about performing successfully at different levels of difficulty.

Self-efficacy constitutes a psychological dimension of how an individual evaluates self in terms of what he or she can do or achieve. Marsh and Yeung (1997) clearly documented that "when children have positive self-efficacy in a given area, they also achieve better and vice versa. In this study, it could be assumed that students who were convinced that they lacked the ability to succeed failed to make effort to perform well in the business studies achievement task. This assumption is corroborated by Skinner, Zimmer-Gembeck and Connell (1998) observed that "students who are convinced that they lack the ability to succeed will not make an effort to engage or excel inschool related work"

2.2.15 The Concept of Students Cognitive Learning Style in Business Studies

The individual differences in style of remembering, thinking and judging are brought together to suggest that individuals have different cognitive styles and are different in intelligence, ability, personality and achievement. Pitcher (2002) supported by reporting cognitive styles as the relatively stable strategies, preferences and attitudes that determines an individual's typical modes perceiving, remembering and problem solving. Cognitive style describes how the individual acquires knowledge (cognition) and process information (conceptualization).

Cognitive styles are related to mental behaviours applied habitually when they are solving problems. Past studies have revealed that cognitive style differences influence learning, problem resolving, decision making and academic attainment (Sadler-Smith, 1998; Kirton, 2003). Wilton, Oltman, Raskin and Karp (1971) argue that cognitive styles and its functioning was first picked up in perception and manifested itself well in intellectual activity. The Group Embedded Figure Test (GEFT) has since become the most commonly used test of field Dependence and

Independence (Witkin, Oltman, Raskin and Karp 1971). The dimension of cognitive styles (Field Dependent or Field Independent) facilitate a quantitative approach to intellectual differences, revealing forms of functioning that are consistently manifested in the cognitive sphere (Guisande, Paramo, Tinajero and Almeida, 2007)

Zailani (2015) summarised the characteristics of field learners as: analytical, competitive, internally directed, intrinsically motivated, generates structures, visually perceptive and ignores stress while Field Dependent learner may be described by the following attributes: global, accepts structures, influenced by salient features, externally directed and affected by stress.

Learner cognitive style is one factor that needs to be taken into consideration, because it can interfere with the desirable effects expected from problem solving, thus investigations regarding the role of cognitive style on learners' performance during problem solving in business studies. Rudimentary understanding of business studies equipsstudents with the knowledge of keeping adequate records of financial transaction and a good analysis of business liquidity and profitability (Azih, 2010). Students are expected to acquire skills for a life time in business studies. A considerable literature(Kirton, 2003; Guisande, Paramo, Tinajero and Almeida, 2007; Zailani (2015) shows that cognitive style is relevant in identifying the process of learning among individual students.

Learning styles are internal traits of students, while external skills are consciously or subconsciously used by students. Researchers(Sadler-Smith, 1998; Kirton, 2003) have examined the relationship between learning cognitive styles and strategies and they also claimed that students' styles had significantly influenced the choices of business studies strategies of learning which eventually enhance the learning outcome. Business studies is one of the courses which is considered difficult for business education students to pass (Nonye and Nwosu, 2011). Though, pre-conceived perception by students that cognitive achievement is difficult, unattainable or unrealizable, has created a great challenge for students which leads to their poor performance and poor acquisition of skills in business studies.

2.2.16 Conventional Teaching Method in Business Studies

Teaching methods are seen as various format employed by the teacher to pass instruction to students, so as to bring about positive changes that are relatively permanent in nature. It was defined as the basic mode of study employed by an

investigator of the theoretical approach used by the teacher in selecting and implementing a curriculum (Harron in Wosu, 2016). Makama (2005) defined teaching method as an orderly process in which teachers used to direct learners in the improvement of knowledge, skills, attitudes and habit. The Universal Basic Education Board (2008) considered teaching methods as guidelines or processes for promoting teaching and learning. It is the approach used by the teacher to stimulate the interest of students in instructions.

One of the common teaching techniques that teachers use today is the lecture method. With the use of the method, the teacher transfers knowledge to the students, who sit inactively and listen in the classroom. Research has it that teachers should not depend on lecture method solely for presenting new knowledge and skills due to the fact that as conventional teaching approach, lecturing may make students to be inactive in the classes, leaving no time for them to comprehend the new information (Ezeani, 2012). Yusuf (2010) stated that they are various approaches used by the teacher to ensure that the learner received the knowledge or skills pre-determined by the teacher. Teaching methods deal with ways or procedures in which information is presented to students. This was seen as a process of directing and controlling the experiences of learners, helping such individual or group of individuals to discover and develop potentialities for the happiness and social welfare (Farrant in UBEB, 2008).

A resent research has shown that learners' active involvement promotes assimilation and recall of concepts to a greater extent than passive involvement (Lord, 2007), and it leads to a meaningful learning (Márquez and Llinás, 2017). Okolocha and Nwadiani (2014) suggested that to strike a balance between theory and practice, which would make recipients later in life to act as both employees and entrepreneurs, it is expected that business studies teachers adopt learner-centered methods, where a teacher is mainly a facilitator of learning.

Nwalado (2008) and Halimat (2014) noted that for effective teaching of business studies to take place; teachers should make appropriate use of the following strategies: simulation, role play, questioning, field trips, problem solving, demonstration, and discussion. Other strategies include: guest speakers, development of business plan, assignment, case study, individual or group project, in-class debate, and Just-in-Time. A specific study for example has shown that incorporating constructively-oriented skills in a problem-based task resulted in improved

authenticity and problem-solving skills development and allows students to better see transferability of skills they learned for their future career (Pretorius, Bailey and Miles, 2013).

Generally, instructional methods help "the learning process to connect conceptual knowledge to a meaningful professional practice" (Ramsden, 2003). However, the effective utilization of appropriate instructional strategies is of paramount importance for a business studies subject to achieve its desired goals and objectives. A teacher, for instance, may be efficient in his or her teaching and still could notachieve significant results, probably because of the inappropriate use of instructional methods during their lesson delivery. It is on this note that, Umezulike (2008) acknowledged that most practical instructional methods are relevant for the teaching of business studies subject particularly at the secondary school level.

However, it is clear that students-centered method has a great role to play in the effective teaching and learning of business studies, particularly at the JSS level of education. To many people, the term 'teaching' means a situation whereby a teacher is explaining a material to students (Woolfolk, 2014). This means that the teacher does more than organizing and providing activities or giving directions, hoping that students will learn something (Price and Nelson, 2011). Teaching is a form of interpersonal influence aimed at changing the behaviour of another person. This means that teaching is concerned with the process of imparting, which helps to enhance the effective interaction between teacher and learners. Clarke (2006) reported that teaching is an activity that are designed and performed to produce change in learner's behaviour.

Before any one can say that teaching is effective, or learning has taken place, there must be a change in the behaviour of the learner (Ogwudire, 2000).In contrast, learning is defined as a social process by which knowledge is created through the transformation of experience (Kolb in Edokpolor, 2018). This means that learning occurs when experience (including practice) causes a relatively permanent change in individual's behavior (Woolfolk, 2014). It is on this basis clarification that Fry, Ketteridge and Marshall (2009) remarked that learning is not a single thing; but involves the mastering of abstract principles, understanding of proofs,remembering of factual information, acquiring of methods, techniques and approaches, or recognition,reasoning, debating of ideas, or developing of behaviour appropriate to specific situations; it is about change. Schunk (2008) also acknowledged that this

change can be deliberate or unintentional, for better or for worse, correct or incorrect, and conscious or unconscious. However, to qualify learning, this change must be brought about by experience, or by the interactions between the learners and their environment.

2.2.17 Learning Outcomes in Business Studies

Learning outcomes in business studies means demonstration of knowledge attained or skills acquired by students in the subject usually designed by test scores assigned by teachers. It is an indication of the types of learning and its environment in a teaching and learning process According to Aydın and Coşkun (2011), the scores in examinations and the exercises in class usually determine the outcome of the students in the course. It might also be in the final year examinations directed by examination bodies such as BECE (Oyo State and NECO) and NABTEB (Aderogba, 2012).

Scholars (Aderogba, 2012; Rilwan,Akahomen and Gbakeji, 2014) have identified several factors influencing students' learning outcomes in business studies which include laboratories, class size, teaching methods, textbooks, teachers' attribute, students' characteristics, and school environment among others. According to Sabitu and Nuradeen (2010), the achievement of any teaching and learning process, that consistently improves students learning outcomes hinge on teachers' effectiveness and efficiency. The teacher's knowledge performs a substantial role in classrooms, as it is able to have effect on teachers' choice of suitable methods while teaching.

Furthermore, Akintade (2011) stated that, it is essential that a teacher needs to be intellectually active in his area of specialisation. Zarei and Sharifabad (2012) discovered that teachers may be different from one another depending on the experience achieved during teaching. Therefore, the impact of teachers' efficiency on the students is measured by students' learning outcomes (Adediwura and Tayo, 2007). Teaching effectively is an important forecaster of the learning outcomes of students, hence, effective teachers should produce students with improved learning outcomes (Rilwani, Akahomen and Gbakeji, 2014). According to Ofoegbu (2004), poor achievement of students can be linked to poor performance of teachers as a result of poor attitude to work, poor teaching habits that have been ascribed to instructional strategy, unqualified,inexperienced teachers among others.

2.3   Empirical Review.

2.3.1   Computer Graphics Instructional Mode and Students' Learning Outcomes (Achievement and Acquisition of Skills) in Business Studies.

In a study conducted by Sangodoyin (2011) that investigated the effects of computer graphics and computer animation presentation modes on senior secondary students' achievement in biology. The findings showed that students who were exposed to computer graphics performed better than those who were taught with the conventional method. Therefore, the study concluded that computer graphics presentation mode was effective in improving students' achievement in biology.

In addition, Olusegun (2016) carried out a study on effectiveness of computer graphics presentation on junior secondary students' achievement in basic technology. The result of the study revealed that there exists a statistically significant difference in academic performance of students taught with the computer graphics package than the students taught with the conventional method. Student taught with computer graphics presentation performed better than their counterpart taught with the conventional method. Also, Samson (2019) investigated the impact of computer graphics and students' academic achievement on senior secondary students' learning outcome in mathematics.   The findings of the study indicated that computer graphics contributed significantly to students learning outcome in mathematics.

2.3.2   Computer Animation Instructional Mode and Students' Learning Outcomes(Achievement and Acquisition of Skills)

A number of empirical studies showed promising results animations have on learning. Trevisan, Oki and Senger (2009) compared two groups of students who used a video of traditional lecture and animation as the learning material respectively.   The learning topic was about follicular dynamics, a topic in physiology. The students invited for the study were from an undergraduate reproductive physiology course in six universities in USA. An immediate one-off test was used as the evaluation instrument. The results in general showed that those used animation as the learning material got significantly higher marks.

In addition, Hay in Abdi (2010) reported a study of using three different media: animation, static and textual material. They were for students to learn the movement of molecules, the effects of heat and pressure on molecules movements, and how molecule diffused from different concentrations. Students were divided into

groups of high and low spatial ability and they were asked to use the three different media to learn. A test was administered at the end to compare the learning performance of students in each group. The results showed that animation was effective to help students who were low in spatial ability.

Also,Rosen(2009) studied the teaching effectiveness of expending animations to educate mastering target in an undergraduate functioning systems course material. Statistical analysis which use a paired t-test indicates enclosure of animations in an undergraduate functioning systems course, produced an important general student performance as measured by pretest and posttest scores. Teachers of computer science are unwilling to design and add animation and visualizations of instructional materials as a result of time restrictions and qualms about their importance. Moreso, Hoffler and Leutner (2007)studied the effect of educational animation versus still pictures. The meta-analysis discovered that animation is superior over pictures that are static in presentation.

In the same vein, Anusiuba, Osuafor, and Nweke, 2019conducted a study on effects of animated media instructional strategies on achievement and retention of secondary school students in computer studies. The finding indicated that animated media instruction was significantly effective in enhancing students' achievement in computer studies. The use of animated media provided the students with richer learning

experience than they had when they were taught using conventional method. The students had greater level of interaction with the learning material.

In addition, Bamidele and Yoade 2017 examined the effects of modes of computer animation instructional packages on students' achievement in Osun State secondary schools' biology.The sample was made up of 100 SSSII students in three intact classes from three randomly selected secondary school in Ife central Local Government Area of the State. The three classes were randomly assigned to animation combined with Narration (A+N), animation combined with narration and on- screen text (A + N + T) group and Control Groups. Data were analyzed using Analysis of Covariance and Scheffe Post-hoc test at 0.05 level of significance. There was a significant main effect of treatment on students' achievement in biology.

Likewise, Egunjobi (2002); Yisa (2004), Hoffler and Leutner (2007); Dasdemir (2008) Aremu and Sangodoyin (2010); Haselden (2011); Bada (2012) Gupta and Lata (2014) observed thatperformance of students that were inthe

animation instructional package group was better than their colleagues that were in the conventional method group. Rahmat (2010) indicated that computer animation learning courseware produced a high quality impact on students' performance in visual art education. Hwang, Tam, Lam and Lam (2012)found that the use of animation as additional learning material of physiology content in four academic years is effective in improving learners' academic achievement. In addition, Yisa (2006) revealed that there was a significant difference between the achievement of students taught with computer animation instructional packagein agricultural science and those taught with the lecture method. Gokhan (2013);Owolabi and Oginni (2014) ascertain that there is a significant difference in the achievement of science learners exposed to cartoon animation than their counterparts exposed to lecture technique only. The difference is in favour of students exposed to treatment.

2.3.3   Interest and Students' Learning Outcomes (Achievement and Acquisition of Skills)

Essien, Akpan and Obot (2015) conducted research on students' interest in social studies and achievement in tertiary institutions, the result reviewed that students' interest in social studies, considerably have effect on achievement. In addition,

Mc Clnerney, Dowson, Young and Nelson (2005) conducted a study with high school students in the United States, reacted to survey items esteem and interest in school work, all indicated positive impacts on students' interest in school work. In another study, Benton, Corkill, Sharp, Downey and Khramstove (1995), investigated the relationship between interest and ability found that there was a significant interaction effect between interest and achievement.

Also, Alexander, Jetton and Kulikowich(1995) found that there is a positive correlation between mathematics and physics. In the same vein, Hornike and Broadbent(2016) investigated the effect of academic interest on achievement and general cognitive ability in mathematics and german. The findings indicated that the relationship between interest and achievement was higher in mathematics compared to german.However, Hidi in Obafemi (2014) stated that interest is regularly directly knotted to the context or instruction, and it additionally guides and improves learning. Developing conditions that make students to form their personal questions, assists to make them develop interest (Hidi and Renninger, 2006).However, Krapp

(2004)affirmed that interest develops from a person's interaction with his or her surroundings.

Moreover, Ughamadu and Okoye (2006) stated that inadequate school infrastructure may hamper student's attention. The findings showed that lack of adequate teaching and learning facilities such as textbooks, typewriters, computer systems, photocopying and duplicating machine hinder effective teaching and learning of business studies. And this is in conformity with Aliyu (2001) that teaching and learning facilities are essential in stimulating interest which in turn motivates students to perform better.

In addition, Imoko and Agwagah (2006) carried out a study on improving students' interest in mathematics through mapping technique using 297 SS II students. Eight classes were randomly selected from four (4) co-educational secondary schools. Data was collected using trigonometry interest inventory, mean and standard deviation as well as ANCOVA was used for analysis. Results revealed that students in the experimental group which was exposed to concept mapping techniques gained more interest in trigonometry content than the control group that was exposed to the conventional method. This implies thatwith appropriateinstructional approaches, students' interest in business studies can be improved.

2.3.4 Self-efficacy and Students' Learning Outcomes (Achievement and Acquisition of Skills)

Numerous studies have shown that there is a positive relationship between self-efficacy and achievement (Kupermintz, 2002; Lau and Roeser,2002;Schunk, 2003; Lodewyk and Winne, 2005; Britner,2008;Liu and Koirala, 2009; Lewix, 2011 and Kiran and Sungur, 2011 andOlosunde, Oyegoke and Ojebisi, 2016). These studies have shown that the greater the self-efficacy of a student, the better his or her academic performance is, irrespective of sexual characteristics, ethnic group or demographic status. In addition, Bates and Khasawneh (2007) examined the effect on the insight of self-efficacy in online learning, the variables that go before the learning process and its aftermath on the anticipation of result. It was discovered that, the achievements acquired in the past in online contexts improved their self-efficacy. They indicate the significance of sufficient and early training which allows learners to practice the diverse elements that a system of online learning offers. This point can be linked to the feeling of ability to work or study or use a virtual learning system as an

incorrect perception of this ability can influence the feeling of self-efficacy and, consequently, performance. The feedback provided by the teacher is another very important source of information to enhance or regulate the sense of self-efficacy.

In the same vein, Alexander in Alesandri, Gerbiro and Caprara (2013) studied the relationship between academic performance and self-efficacy. Results from the study showed a high degree of positive, significant association between general self-assessment and academic self-efficacy, as well as between academic performance and self-efficacy. In like manner, Schunk (2003) in a study found that self-efficacy proved itself favourably associated with academic performance. In the same vein, Shkullak (2013) discovered a significant relationship between the students' self-efficacy and academic achievement in a study of 280 students of Albanian University.

In a study that examined the effect of learning styles and self-efficacy on the academic achievement ofMalaysian candidates who enrolled in a Masters of Business Administration (MBA) program, Rashid (2004), observedthat the 122 candidates with different learning styles did not vary in their academic achievement. Resultsalso showed that self-efficacy had a strong impact on the educational achievement. Furthermore, Ilori (2004) carried out a study to establish the relationship between self-efficacy and academic achievement among secondary school students in Irewole Local Government in Osun State. The result showed that there was no significant relationship between self-efficacy and academic achievement of students in secondary school.

In addition, Li (2012) investigated the relationship between self-efficacy, effort and academic achievement in a sample of 153 studentsfrom the department of Applied Social Studies in the City University of Hong Kong. Findings showed that attitude and self-efficacy were respectively related to eachother; attitude was related to academic performance; and self-efficacy correlatedwith academic achievement.In the same vein, Tenaw (2003) investigated the level of students' self-efficacy, gender difference and achievement. Also, the relationship between self-efficacy and achievement for 2nd year students in analytical chemistry I (ACI) at DebreMarkosCollege of Teacher Education (DMCTE). The self-efficacy survey and the ACI achievement test were completed by 100 students. The analysis of the data indicated a significant relationship exists between self-efficacy and achievement.

Also, (Nor and Siti 2019) investigated on the relationship between self-efficacy in science and academic achievement amongst national secondary school

students in the Rompin district. A total of 191 students from 4 schools in the Rompin were involved in the study. The study found that practical work was the highest contributing factor to students' self-efficacy, whilst cognitive skills were the lowest contributor.

In the same vein, Schunk (2003) also provided additional support for the impact of self-efficacy on educational achievement. Also, Mara de (2014) investigated the relationship between self-efficacy and academic achievement in adult learners. The analysis of the data indicated that students' level of self-efficacy is high and a significant relationship exists between self- efficacy and academic achievement.

However, Baanu, Oyelekan, and Olorundare (2016) conducted a study on self-efficacy and chemistry students' achievement in senior secondary schools in North-Central, Nigeria. The population of the study were 1150 senior secondary school III chemistry students selected from Kogi, Kwara and Niger states of Nigeria. The findings revealed that there was no significant relationship existed between self-efficacy and academic achievement of students in chemistry.

In addition, Durowoju (2014) investigated the effect of continuous assessment modes on students' learning outcomes in commerce in senior secondary schools in Ibadan. The study adopted quasi experimental design with sample size of 846, using commerce self-efficacy and teacher-students' relationship as moderating variables. The finding revealed no significant main effect of self-efficacy on students' achievement in Commerce, but there was no significant main effect of commerce self-efficacy on students' achievement in commerce.

Independent Variables　　　　　　　　　　　　　　**Dependent Variables**

| Computer Graphics Instructional Modes

Computer Animation Instructional Modes

Conventional Method |

| Achievement in Business Studies

Acquisition of Skills in Business Studies |

Moderator   Variables

- Interest of students – high and low
- Self-efficacy of students – high and low
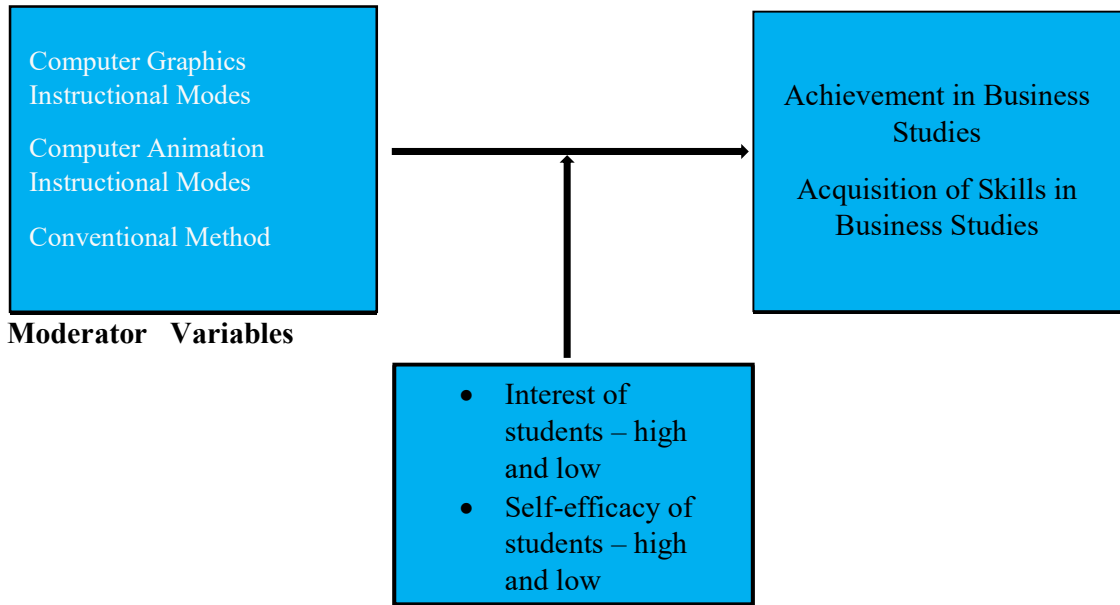
Fig. 2.1: Conceptual Framework

2.4   Description of Conceptual Framework

Computer graphics, computer animation and conventional methods are the treatment interventions that were used in this study, which are referred to in the above conceptual model as the independent variables manipulated by the researcher to see the effectiveness on the dependent variables (achievement in business studies and acquisition of skill in business studies). The moderator variables are students' interest and self-efficacy of students in business studies. The arrows suggest that there might be a link among the independent variables (computer graphics and animation instructional), the moderator variables (students' interest and self-efficacy) and the dependent variables (achievement in business studies and acquisition of skills in business studies). However, this had been done in the study through the primary data collection and analysis.

2.5   Appraisal of Literature Review

The review of existing literature shows that lots of researches have been conducted towards tackling the low achievement of learners in business studies (Ramsden, 2003; Nwalado, 2008; Umezulike, 2008; Nwogu, 2011; Udoukpong, Emh, Umoren, 2012; Okolocha and Onyeneke, 2013; Halimat, 2014; Zailani, 2015; Ohiwerei, 2015 and Wosu, 2016; Amesi and Giami, 2018; Akpomudjere 2020). The literature reviewed showed that teachers in Nigeria commonly used conventional lecture method in teaching their students and this method has been considered unfit, undemocratic and teacher-centered, which will not allow critical thinking, interactive collaboration skills, problem-based solving skills, needed for the attainment of good learning outcomes in business studies. This research study looked at the difference between the traditional or conventional method of teaching and the technological method of instruction on students' learning outcomes.

However, the literature overpoweringly revealed that students observe that the use of the computer graphics and animation modes of instructions do improve learning outcomes. Instruction needs to integrate technology efficiently, and research needs to be done to discover instructional methods buttressed by empirical evidence. Students want to be involved in their learning; they want learning to be fun, innovative and imaginative. Notwithstanding, Prensky (2007) found that today's students have been opened to the fast pace of information delivered by technology and expect quick outcomes to their questions. Scholars have recognized positive

aspects of teaching aids and propose ways to integrate these methods in classroom instructions. The need for more empirical evidence concerning technology and learning exists.

Research evidences show that many of the teachers are either not aware of or are not receptive to the new instructional approaches such as computer graphics and animation instructional modes. Numerous studies were conducted on the effect of animation method in teaching and learning. Scholars (Egunjobi, 2002; Knowton and Morison, 2002; Stith, 2004; Yisa, 2004; Hoffler and Leutner, 2007; Dasdemir, 2008; Barak, Ashkar, and Dori, 2010; Aremu and Sangodoyin, 2010; Haselden, 2011; Bada, 2012; and Gupta and Lata, 2014; Agbagbue, 2018) all observed that when a skilled and enthusiastic teacher presents animation systematically, it offers a valued way to communicate dynamic, intricate sequences of events more effectively to students. In the same vein, Knowton and Morison (2002), advocates that, when animations are used in teaching, it served five functions; connection; attention gaining: motivation; presentation; and clarification functions. In the same view, Agina (2003), found that animation as an instrument of education and training has advantages of: skill and ability improvement; interactivity; engagement; motivation; provision of immediate feedback; aid students through attracting and holding their attention. Interest as a variable in science education has been found to be one of the strong catalysts of teaching and learning. Several literatures (Aggarwal, 2009; Mangal, 2010; Renninger and Hidi, 2011;Obeka, 2013) reviewed on how interest can be generated as well as its measurement.

2.6   Gaps to be filled

Efforts of previous researchers to find ways of improving students' performance in business studies led to the use of teaching strategies such as field trip and brainstorming (Wosu, 2016),Just-in-Time Teaching (JiTT) (Wanner, 2015), instructional technology (Agbagbue, 2018),the application of Information and Communication Technology (ICT) (Imeh, Jeremiah and Ime (2010) and Agbamu, 2004), questioning, discussion and project based (Adediran, 2014), community resources (Obadiah, 2015), hands on learning, business quiz, case studies, role play, simulations and business games, classroom group discussion, problem based learning, lecturing in communities (team learning) and peer tutoring (Abdulquddus, 2015), guided inquiry instructional strategy and instructional games strategy (innovative

strategy) (Nwalodo, 2018; Obidule and Eze, 2018), cooperative instructional strategy (Slavin, 2010 andBurman 2018), demonstration (Obi, 2018), students-centred (Edokpolor, 2018) dramatization (Sunir,2018).

Though, computer graphics and computer animation instructional strategies have been used in science classrooms in the area of biology (Aremu and Sangodoyin, 2010; Yisa, 2014) physics (Adegoke, 2010), science (Gupta and Lata, 2014), mathematics (Gambari, Falode and Adegbenro,2014) and geography (Salisu, 2015),food and nutrition (Algilasi, 2010) agricultural science (Bada, Adekomi and Ojo, 2012, and Yisa, 2016)as concluded by Gniffiths (2013), that animation is used mostly in science and art classes, however, the past studies did not consider business studies as a subject and also the studies were carried out among senior secondary school students.

Also, series of studies have proved the effectiveness of computer graphics and animation instructional modes on students' performance most especially in science and art related subjects,computer graphics and animation modes in biology (Sangodoyin, 2011), use of animation as a supplementary learning material of physiology (Hwang, Tam, Lam and Lam, 2012), computer animation instructional package in biology (Yisa, 2014), IT-enabled instructional package in science (Gupta and Lata, 2014), animated agricultural science instructional package (Yisa, 2016)computer animation and geometrical instructional model on mathematics achievement and retention (Gambari, Falode, and Adegbenro, 2014), effect of animation technique on the 7th grade science and technology course (Gokhan, 2013), how do animations influence learning? (Ainsworth, 2008), strategies for improving teaching and learning, (Azuama, 2004), effects of animation technique on teaching acids and bases (Dasdemir, Doymus, Simsek and Karacop, 2008) the effects of using text and picture animation on promoting english learning among students (Algilasi, 2010), but its effect in business studies has not been researched into. Concerted efforts have also been recorded by previous researchers on how to improve on students' achievement, but it appears not much has been done to establish to what extent will students be able to retain the knowledge acquired. This study, therefore, filled the gaps by presenting computeranimation instructional mode which helps students to retain the knowledge acquired.

Furthermore, some psychological factors, such as mental ability (Sangodoyin, 2010 and Sangodoyin, 2011), self-efficacy (Durowoju, 2014), interest (Yu je lee,

2011; Paul, 2013; Paul, 2014; Kpolovie, Joe and Okoto, 2014;Essien, Akpan and Obot, 2015and Omotayo, 2017)had been well researched and confirmed positively related to students' achievement, but it seems very few studies were available on computer graphics and animation instructional modes, (Chen, Shi and Xuan, 2007; Adegoke, 2010; Algilasi, 2010, Sangodoyin, 2011 and Bada, Adekomi and Ojo, 2012, Olamigoke, 2019), but not in achievement and skills acquisition in business studies.Therefore, this study filled the gap.

Previous studies revealed that few studies were carried out in entrepreneurial skills, but none of these studies revealed the effect on business studies. Also, past researchers used variables like gender, attitude, mental ability as moderating variables, but none used self-efficacy and interest as moderating variables to find out the effects of the teaching packages on students' learning outcomes using achievement and acquisition of skills in business studies as the dependent variables. Literature search on skills in business studies showed that few studies have been conducted on the effect of teaching strategies on entrepreneurial skills in biology(Abanikannda, 2018), but there is dearth of literatureon skills acquisition in business studies. Hence, this study filled up the gap.

Inaddition, various studies have been carried out to investigate the effect of these variables or a part combination of them on students' achievement in various school subjects. Wosu (2016) investigated the effect of field trip and brainstorming on learning achievement in business studies,(Okoro and Iyeke, 2004; Aderogba, 2012; Rilwan,Akahomen and Gbakeji, 2014; and Ogwunte and Okolocha,2016) have identified several factors influencing students' learning outcomes in business studies which include laboratories, class size, teaching methods, textbooks, teachers' attribute, students' characteristics, and school environment among others.it appears that computer graphics, computer animation, business studies self-efficacy and interest have not been jointly put together in one study, to examine their casual influence on one another and particularly on students' achievement and acquisition of skills in business studies.

Also, available literature showed that some studies have been carried out focusing on computer graphics and animation instructional modes on achievement, using mental ability, gender, self-concept and attitude as the moderator variables (Egunjobi, 2002; Yisa, 2004; Sangodoyin, 2011; Li,2012; Aksoy, 2013; Gambari, Falode and Adengbenro, 2014). Other studies carried out on effect of computer

animation were only on achievement (Agina, 2003; Ainsworth, 2008;Dasdemir, Doymus, Simsek and Karacop, 2008;Aremu and Sangodoyin, 2010; Sangodoyin, 2011; Bada, Adekomi and Ojo, 2012; Gupta and Lata, 2014 andYisa, 2016). There seems to be dearth of literature on studies that combined effect on both achievementand acquisition of skills as learning outcomes in business studies using computer graphics and animation instructional modes as independent variables. Literature reviewed showed the need for empirical studies on the effect of computer graphics and animation instructional modes on vocational studies like business studies, introductory technology, food and nutrition, etc. Hence, this study filled the gap.

Furthermore, different studies were carried out using experimental design, but did not pick out the topics that are perceived difficult to teach from the perspective of the teachers and those topics that are perceived difficult to learn from the perspective of the students to form their topics for the experimental study. However, this study was carried out in two phases; that is, the survey and experimental design to verify the effects of the two packages to teach business studies.

Also, there seems to be gross dearth in available literature of the interaction effects of teaching methods (computer graphics and animation instructional modes) and students' interest and self-efficacy on achievement and skill acquisition in business studies. A related study carried out by Sangodoyin (2011) was able to establish the effects of computer graphics and animation instructional modes on learning outcomes in biology. Hence, the importance of this study is to establish the effects of computer graphics and animation instructional modes on students' achievement and acquisition of skills in business studies. However, this study provided empirical facts as regards the effect of teaching methods (computer graphics and animation instructional modes) using students' interest and self-efficacy of students as moderating variables and achievement and acquisition of skills as dependent variables in a single study. There is literature review on instructional strategy of students' interest on achievement, but there is no literature search on students' interest on achievement, most especially on skill acquisition in business studies.

It is based on this premise that this study filled the gap by exposing students to the use of computer graphics teaching package and computer animation teaching package as media of imparting knowledge and also examining the effects of the

packages on students' achievement and acquisition of skills in business studies among junior secondary schools.

CHAPTER THREE
METHODOLOGY

This chapter discussed the research methodology used in conducting this study such as: research design, variables of the study, target population, sampling procedure and sample, instrumentation, validation of the instruments, treatment procedures, procedures for data collection and method of data analysis.

3.1   Research Design

Phase one of the study adopted survey, and the second phase adopted a pretest-posttest, control group quasi-experimental design. There was need to carry out a survey because it serves as the basis for the commencement of phase two.

The research design is structurally illustrated below:

Experimental group I O_1 X_1 O_2

Experimental group IIO_1 X_2 O_2

Control Group III O_1 X_3 O_2

where:

O_1-Represents observation at pre-test for experimental groups 1, 2 and the control
       group.

O_2 - Represents observation at post-test for experimental groups 1, 2 and the control
           group.

X_1 - Represents experimental group 1 exposed to computer graphics instructional
mode.

X_2- Represents experimental group 2 that was exposed to computer animation instructional mode.

X_3 - Represents the experimental group 3 that was taught withconventionallecture teaching method.

Table 3.1: Factorial Matrix of the Experimental Design

The 3x2x2 factorial matrix, which is the analytical design of this study, is presented in

Table 3.1

Interest	Treatment					
	Computer Graphics Instructional Mode		Computer Animation Instructional Mode		Conventional Teaching Method	
	Self-efficacy		**Self-efficacy**		**Self-efficacy**	
	Low	High	Low	High	Low	High
High						
Low						

3.2   Variables in the Study

The variables in this study are:

3.2.1   Independent variables

i.   Computer Graphics Instructional Mode

ii.   Computer Animation Instructional Mode

iii.   Conventional Teaching Method (Control Group).

3.2.2   Moderator variables

i.   Interest at two levels (a) High (b) Low

ii.   Self-efficacy at two levels (a) High (b) Low

3.2.3   Dependent variables: These are:

i.   Achievement in Business Studies

ii.   Acquisition of Skills in Business Studies.

3.3   Population of the Study

The target population of this study comprised all public schools with computers in the three local government areas, junior secondary school students with age averaged 13 years and their teachers in Ibadan. In all, there were 270 students (135 boys and 135 girls) and 9 business studies teachersin Oyo state.

3.4Sampling Technique and Sample

3.4.1   Survey Method

In phase one of this study, schools in Ibadan were clustered along the two existing educational zones, Ibadan zones I and II.Purposive sampling technique was used to select two local government areas (LGAs) from Ibadan city (Ibadan North and IbadanNorth WestLocalGovernment) and one local government area (LGA) from Ibadan less city (Akinyele Local Government). Simple random sampling technique was adopted to select five (5) schools each from Ibadan North, Ibadan North West and Akinyele Local Government making a total of fifteen schools.

The researcher randomly sampled (JSS II) class from each of the schools selected for the study. The reason for selecting JSS II class for the first phase which was the survey was because both the teachers and students had covered a large

proportionof JSS II curriculumand were able to identify the topics that were perceived difficult to teach from the perspective of theteacher and those which were perceived difficult to learn from the perspective of the students.Thirty junior secondary students in each of the schools were randomly selected to make a total of 450 students.

The questionnaires were administered to both the students and the teachers during the revision week for the third term examination. This period was chosen to administer the questionnaires in order to prevent the students as well as the teachers from forgetting to identify correctly which topics were perceived difficult to teach and those that were perceived difficult to learn by the time they resumed for first term in a new academic session.

Table 3.2   Sample Frame

Selected Educational Zone	Number of Local Government Areas	No of Local Government Selected	No of Public Secondary Schools Selected per Local Government Area	No of Teachers	No of Students
Ibadan Zone 1	5	2	10	10	300
Ibadan Zone 2	6	1	5	5	150
Total	11	3	15	15	450

The survey was directed by:

(a)   Business Studies perceived difficult to teach concepts. The survey of practicing teachers revealed the perceived difficult to teach concepts.

(b)   Business Studies perceived difficult to learn concepts. The survey of registered students revealed concepts that were perceived difficult to learn.

Along the line of further analysis, the researcher related the perceived difficult to teach concepts and perceived difficult to learn concepts and picked topics that appeared to be consistent from both the teaching group and the learning group and which both teachers and students were emphasizing formed the concepts of the survey. The link between the survey and the experiment is that the more challenging teaching and learning topics were picked and subjected to treatment (Computer Graphics

Instructional Mode (CGIM), Computer Animation Instructional Mode (CAIM) and Lecture Method using Conventional Teaching Method (CTM) for eight weeks.

3.4.2   Experimental Study

In phase two of this study, schools in Ibadan were clustered along the two existing educational zones. Purposive sampling technique was used to select two Local Government Areas (LGAs) (Ibadan North, Ibadan North West) from Ibadan city and one Local Government Area (Akinyele) from Ibadan less city, totaling three LGAs. Purposive sampling technique (based on schools that had functional computers) was also used to select six schools from Ibadan city and three schools from Ibadan less city, making a total of nine (9) schools from the three chosen LGAs. Thirty junior secondary students in each of the schools were randomly selected making a total of 270 students.

The schools that took part in the experimental study;

i.   had at least ten functional computers system with a standby generator each;

ii.   were co-educational and;

iii.   were far from one another in terms of distance to avoid undue interaction among the participants from the schools.

The selected schools were assigned to each of the treatment. That is, three schools were assigned to each of the groups (computer graphics instructional modes, computer animation instructional modes and conventional lecture method of teaching). Finally, in each of the schools that were selected, simple random sampling was adopted to select an arm of JS II. The class was chosen because the class had covered a large proportion of the junior secondary school's business studies

curriculum thereby were expected to have sufficient knowledge in business studies. Also, the difficult topics reside in JSS II.

Table 3.3: Sample Frame

Selected Educational Zone	Number of LGA	No of LGA Selected	No of Public Secondary Schools in the Selected LGA	No of Teachers per LGA	No of Public Secondary Schools Selected per LGA	No of Students Selected
Ibadan Zone 1	5	2	Ibadan South West = 20 Ibadan North = 48	6	6	180
Ibadan Zone 2	6	1	Akinyele Local Government = 50	3	3	90
Total	11	3	118	9	9	270

3.5 Instrumentation

Two response instruments were used in phase one. They are:

(1)   Business Studies Perceived Difficult to Teach Concepts Questionnaire (BSPDTCQ)

(2)   Business Studies Perceived Difficult to Learn Concepts Questionnaire (BSPDLCQ)

3.5.1:1 Business Studies Perceived Difficult to Teach Concepts Questionnaire (BSPDTCQ)

This instrument was developed by the researcher to identify the topics that are perceived to be difficult to teach from the teachers' perspective. It has two sections. The first section was used to capture the bio-data of the teachers such as name of school, gender and age. The second section consisted of 23 topics in the JSS II business studies curriculum scale ranging from Very Perceived Difficult to Teach (VPDT), Perceived Difficult to Teach (PDT) to Not Perceived to be Difficult to Teach (NPDT). (seeappendix I, pages 191 -192)

3.5.1:2 Business Studies Perceived Difficult to Learn Concepts Questionnaire (BSPDLCQ)

This instrument was developed by the researcher to ascertain the topics that are difficult to learn from students' perspectives. It has two sections. The first section was used to capture the bio-data of the studentssuch as name of school, class, gender and age. The second section consisted of 23 topics in the JSS II Business Studies Curriculum. The scale ranged from Very Perceived Difficult to Learn (VPDL), Perceived Difficult to Learn (PDL) to Not Perceived Difficult to Learn (NPDL). (see appendix II, pages 193-194).

3.5.2 Experimental Phase

In the second phase of the study, two types of research instruments were used. They were response and stimulus instruments.

(a)   Response Instruments

1.   Business Studies Achievement Test (BSAT)

2.   Acquisition of Skills in Business Studies Scale (SSABS)

3.   Business Interest Scale (BIS)

4.   Business Studies Self Efficacy Questionnaire (BSSEQ)

(b)   Stimulus Instruments

1.   Computer Graphic Teaching Package (CGTP)

2.   Computer Animation Teaching Package (CATP)

3.   Conventional Instructional Package (CIP)

4.   Teachers' Instructional Guide (TIG)

a.   Computer Graphics Teachers' Instructional Guide

b.   Computer Animation Teachers' Instructional Guide

c.   Conventional Method Teachers' Instructional Guide

3.6.1   Business Studies Achievement Test (BSAT)

This instrument was developed by the researcher based on JSS II Business Studies Syllabus in Oyo State. It has two sections. The first section was used to capture students' personal profile such as name of school, class, gender and age**.** The second section contained an initial draft of eighty (80) multiple choice test items having four options, that is, A-D with one correct answer and three distractors. The content validity of the BSAT was ensured by using test blue print covering the first three levels of Bloom's taxonomy educational objectives (Knowledge, Comprehension and Application). The generated items were given to experts in business studies as well as experienced secondary school business teachers for vetting.

        The contents areas covered techniques development in keyboarding, paragraphing, page set-up, printers' correction signs and ledger entries. The pilot testing was done by administering the items to a randomly selected 100 J.S.S.2 students who did not take part in the study. The reliability of the items of the test was established using Kuder-Richardson Formula (KR_{20}) which yielded a reliability coefficient of 0.82. Items with the discrimination index above 0.3 and difficulty level indices between 0.40 and 0.60 were included in the final test. The result of item analysis helped to reduce the number of items from eighty (80) to forty (40). BSAT was dichotomously scored. A score of 1 was assigned to a correct response, while 0 was assigned to a wrong response. (see appendix III, pages 195-202).

Table 3.4   Table of Specification for Business Studies Achievement Test

Topic	Knowledge (40%)	Comprehension (50%)	Application (10%)	Total (100%)
Technique Development in Keyboarding (15%)	1 (3)	3 (20,27,28)	2(10, 38)	**6**
Paragraphing (12.5%)	1 (36)	3 (6,15,17)	1(37)	**5**
Page set up (12.5%)	3 (11,22,26)	2 (12, 24)	NIL	**5**
Printers' Correction Signs (27.5%)	8 (5,7,14,19,29, 33,34,39)	3(23,25,32)	NIL	**11**
Ledger Entries (32.5%)	3(18,21,31)	9 (1,2,4,8,9,13,16,35,40)	1(30)	**13**
Total (100 %)	**16**	**20**	**04**	**40**

3.6.2 Business Studies Skills Acquisition Scale (BSSAS)

Business Studies Skills Acquisition Scale (BSSAS) was developed specifically by the researcher to assess the nature and level of students' skills acquisition in business studies**.** The questionnaire was filled by business studies teachers. It consists of two sections, A and B. Section A contains information about students' gender and age. Section B consists of forty (40) items. The items were placed undera three response scale ofHighly Skilled (HS); Moderately Skilled (MS); Not Skilled (NS) with 2,1,0-point scale. The instrument was subjected to face validity by experts in the field of instrument construction and development. The reliability of the items was determined using Cronbach Alpha which gave a value of 0.86. Each of the items was rated as follows; 2, 1 and 0. (see appendix IV, pages 203-204)

3.6.3 Business Studies Interest Scale (BSIS)

The researcher developed the instrument. It was designed to express thefeelings of students towards business studies.The instrument has twenty (20) items on a three (3)- point scale and consisted of two sections. Section A captured the bio data of respondents, gender, age and class. Section B contained the responses to the statements in the questionnaire. Ranging from Always (A), Often (O), to Rarely (R). The instrument was subjected to face and content validity by experts in the field of business studies as well as some lecturers in theInternational Centre for Educational Evaluation. The result of item analysis helped to reduce the thirty (30) items to twenty (20). Cronbach Alpha was used to determine the reliability of the instrument which yielded a value of 0.84. This showed that the items were reliable and could be used. The positive items were scored 3, 2, and 1, while negative items werereversed in the opposite way. (see appendix V, pages 205 -206)

3.6.4 Business Studies Self-Efficacy Questionnaire (BSSEQ)

This questionnaire was developed by the researcher to examine the extent at which students' academic self-efficacy determined achievement. It consisted two sections, A and B: Section A was on the bio data of the students. Section B contained twenty (20) items. The respondents responded along 4-point Likert scale response options, Very True of Me (VTM), True of Me (TM), Fairly True of Me (FTM), Not True of Me (NTM). The BSSEQ was trial tested using 100 J.S.S.2 students who did not take part in the study to establish the psychometric property of the instrument. The result

of the items analysis helped to reduce the thirty-five (35) items to twenty (20). Cronbach Alpha was used to establish internal consistency and reliability coefficient of BSSEQ. The reliability of the instrument was found to be 0.82. This shows that the items were reliable. Each of the positive items was scored as follows: 4,3,2, and 1 for Very True of Me, True of Me, Fairly True of Me, Not True of Me. Negative items were reversed in the opposite way. (see appendix VI, pages 207-208).

3.7.1 Treatment Package (TP)

This was the instructional package guide for the research assistants (business studies teachers) that took part in the study. Computer Graphics Instructional Package (CGIP) and Computer Animation Instructional Package (CAIP) consisted five topics in business studies: techniques development in keyboarding; paragraphing; page set-up; ledger entries; and printers' correction signs. This was packaged by the researcher in line with suggestions and contributions of experienced computer graphics and animation designers and lecturers in educational technology. as well as experts in the field of research.

Computer Graphics Instructional Package (CGIP) and Computer Animation Instructional Package (CAIP) consisted five topics in business studies: techniques development in keyboarding; paragraphing; page set-up; ledger entries; and printers' correction signs.

3.7.2 Computer Graphics Instructional Guide (CGIG)

Computer Graphics Instructional Guide was designed by the researcher to serve as guide for research assistants in the Experimental Group I. The instrument was given to experts in the fields of evaluation and educational technology as well as some experienced business studies teachers for constructive criticism. This was later trial tested on 20 students, who did not participate in the study, to see the suitability of the instrument. (see appendix VII, pages 209 - 210)

3.7.3 Computer Animation Instructional Guide (CAIG)

Computer animation instructional guide was designed to serve as guide to the research assistants in computer animation group. The instrument was subjected to scrutiny and constructive criticism by research experts in educational technology as well as seasoned business studies teachers. It was trial tested on 20 students who did not

participate in the study to establish its appropriateness. (see appendix VIII, pages 246 -247)

3.7.4   Conventional Method Instructional Guide (CMIG)

Conventional method instructional guide was written by the researcher based on the prevailing conventional methods of teaching in schools. (see appendix IX, page 272)

3.8.1   Experimental Group I -Computer Graphics Teaching Package (CGTP)

The draft was prepared by the researcher to show the various steps the teacher would follow.

1. Divide class into six groups (maximum of 5 students in a group).
2. Choose the group leader.
3. Put on the computer.
4. Instruct the group leader to do as instructed by the teacher.
5. Teacher clarifies issues.
6. Teacher allows the learners to ask questions on the aspect they do not understand.
7. The teaching package gives the students class activities.
8. Teacher corrects the students when and where necessary.
9. The teaching package gives the students assignment.

Students' Activities

1   Students sit in front of the computer and the group leader puts on the computer.
2   Every member of the group watches and listens
3   The group leader (student) clicks the computer as instructed by the teacher.
4   Students listen carefully to the teaching.
5   They ask questions from the teacher.
6   Students do the class activities as the computer instructs.
7   Students copy notes into their notebooks.
8   Students copy their assignment.

NB: See Appendix VII.

3.8.2 Experimental Group II - Computer Animation Teaching Package (CATP)

The draft was prepared by the researcher to show the various steps the teacher would follow.

1   Divide class into six groups (maximum of 5 students in a group).

2.   Teacher introduces the topic to the students through computer animation teaching package.

3.   Teacher clarifies issues.

4.   Teacher pauses the teaching package to ask questions.

5.   Teacher welcomes questions from the students.

6.   The teaching package gives the students class activities.

7.   Teacher does correction with the students when and where necessary

8.   Teacher gives the students notes to copy into their notebooks.

9.   The teaching package gives the students assignment.

Students' Activities

1.   Students sit in front of the computer, switch on the computer and click the animation teaching package.

2.   Students listen carefully to the teaching.

3.   Students ask questions from the teacher.

4.   Students do the class activities.

5.   Students submit the class activities for marking.

6.   Students copy the correction.

7.   Students copy the assignment into their notebooks.

NB: See Appendix VIII.

3.8.3 Conventional Method Instructional Guide

Students in the control group were treated with the conventional method. They were not taught with any teaching package. The trained teachers in this group used conventional teaching method prepared in form of notes of lesson to maintain the conventional classroom environment.

Steps to be taken in conventional teaching method are:

Teacher' Activities

1.   Asks questions on the previous lesson to establish understanding and create bases for the new topic.

2. Identifies the missing gaps and provide further explanations.

3. Introduces and develop the topic for the day and writes on the board as well. Note writing accompanies the teaching.

4. Asks questions on the topic taught for the day to assess their degree of understanding of the topic.

5. Gives them assignment to be submitted on a stipulated date and time.

6. Marks the students' notebooks.

Students' Activities:

1. Listen attentively.

2. Answer teacher's questions to display their level of understanding.

3. Pay keen attention to the explanation.Participate in class activities.

4. Ask any adjoining questions when and where necessary

5. Copy the notes from the chalkboard into their notebooks.

6. Students copy the assignment.

7. Students submit their notebooks for marking.

NB: See appendix IX.

3.9 Method of Data Collection

3.9.1 Visitation of Schools

In carrying out the research, the researcher collected a letter of introduction from the Institute of Education, University of Ibadan to the Ministry of the Education, the State Universal Basic Education and Local Education Board in each Local Government Area in Ibadan that was involved in the study. The researcher also visited the schools selected to seek the cooperation of the principals and the business studies teachers. The researcher inspected and installed computer graphics and computer animation instructional modes on the computers in the laboratory.

3.9.2 Training of Research Assistants

In the second week, the researcher trainednine (9) research assistants (business studies teachers) who were supervised by the researcher in the teaching and administering of the treatment on the subjects in their various schools. The training manual was provided for all the research assistants. They were subjected to micro teaching before the treatment commenced in all the schools that were used for the experiment.

3.9.3 Students' Orientation and Administration of Pre-test

All the business studies students in the JSS II class used for the study were given enlightenment briefing on what they were expected to do. This orientation took place in the second week with the research assistants training. The researcher and the research assistants carried out the pre-test on all the learners that took part in the study. The Business Studies Achievement Test, Business Studies Interest Scale and Business Studies Self-Efficacy Questionnaire were administered on thestudents as pre-teststo measure their knowledge levels before the treatment commenced. In like manner, Business Studies Skills Acquisition Questionnaire was given to the research assistants(business studies teachers) to rate the students in respect of the levels of skills they already acquired.

3.9.4 Treatment Procedure

The treatment was carried out on the experimental and the control groups; it lasted nine weeks.The research assistants (business studies teachers) were taught based on thegroups they were trained for, using the instructional plan. The researcher visited all the schools to observe the research assistants and the students. Finally, Business Studies Achievement Test, Business Interest Scale and Business Studies Self-efficacy Scale were administered on students as post-test during thetenth week.Also, Business Studies Skills Acquisition Questionnaire was given to the research assistant (business studies teachers) to rate the students in respect of their level of skills. The same instruments that were administered during pre-test were also administered after the treatment had been given as the post-test.Scoring was done during the eleventh week.

3.9.5 Summary of the Activities for the Study

Week 1:   Visitation of schools to meet with the principals, business studies teachers and installation of computer graphics and computer animation instructional

modes packages.

Week 2:   Training of business studies teachers(research assistants), students' orientation and administration of pre-test on the participants.

Week 3-9: Administration of treatment.

Week 10:   Administration of post-test.

3.10   Method of Data Analysis

At the survey phase, frequency counts were used to analyse the data collected on the topics that were perceived difficult to teach, perceived difficult to learn by teachers, students and by both teachers and students. In the experimental phase, the data collected for the study was classified into pre-test and post-test scores for both experimental and control groups. Descriptive statistics was used to get the group mean scores and standard deviations of the students' performance in Business Studies Achievement Test (BSAT), Business Studies Interest Scale (BSIS) and Business Studies Self-Efficacy Questionnaire (BSSEQ). BusinessStudies Skills Acquisition Questionnaire (BSSAQ) was also analysed. The post-test scores were subjected to Analysis of Covariance (ANCOVA) using the pre-test scores as covariates. Sidak Post-Hoc test was used to test the level of significance. All hypotheses were tested at 0.05 level of significance.

3.11   Methodological Challenges

There was the problem of power supply. This was overcome by using generators during the course of teaching in the schools that were in the experimental group. Another challenge was the anxiety on the part of the researcher, research assistants and the students. The problem was overcome by visiting the schools before the commencement of the treatment in order to familiarize herself with the research assistants and the students.

The researcher also encountered the problem of test phobia on the part of the students as another challenge. This was overcome by encouraging the students to study hard. Prizes were given to those that performed well.

Another challenge was obtaining the cooperation of the teachers and students. The researcher was able to take care of this problem by establishing a good relationship with them and encouraging them to take part effectively in the study. The participants were adequately motivated to ensure that they were punctual and active throughout the experiment.

CHAPTER FOUR
RESULTS AND DISCUSSION

This chapter examined the results and discussion of the findings in this study. The results are presented and discussed with respect to the research questions and research hypothesis.

4.1   Research Questions

Research question 1a: What are the topics identified by teachers as perceived difficult to teach in business studies?

Table 4.1.1: Percentages and Frequency Topics Identified by Teachers as Perceived Difficult to Teach in Business Studies

S/N	TOPICS	PVDT	PDT	PNDT
1	The Reception Office	0 (0%)	0 (0%)	15(100.00%)
2	Office Correspondence	0 (0%)	2(13.33%)	13 (86.66%)
3	Office Documents	0 (0%)	3(20.00%)	12 (80.00%)
4	Trade	0 (0%)	0 (0%)	15(100.00%)
5	Market	0 (0%)	2 (13.33%)	13 (86.66%)
6	Distribution	0 (0%)	0 (0%)	15 (100%)
7	Bank service	0 (0%)	2 (13.33%)	13 (86.66%)
8	Insurance	0 (0%)	2 (13.33%)	13 (86.66%)
9	Entrepreneurial Skills	0 (0%)	0 (0%)	15(100.00%)
10	Business opportunities	0 (0%)	0 (0%)	15(100.00%)
11	Consumer Rights	0 (0%)	0 (0%)	15(100.00%)
12	Responsibilities of a consumer	0 (0%)	0 (0%)	15(100.00%)
13	Shopping Tips	0 (0%)	0 (0%)	15(100.00%)
14	Book Keeping Ethics	0 (0%)	0 (0%)	15(100.00%)
15	Ledger Entries	13 (86.66%)	2(13.33%)	0 (0%)
16	Petty cashbook	0 (0%)	2(13.33%)	13 (86.66%)
17	Cashbook	0 (0%)	3 (20.00%)	12 (80.00%)
18	Printers' correction signs	15 (100.00%)	0 (0%)	0 (0%)
19	Memorandum/e-mail	0 (0%)	0 (0%)	15(100.00%)
20	Speed Development and Accuracy skills	0 (%)	3(20.00%)	12 (80.00%)
21	Techniques development in Keyboarding	15(100.00%)	0 (0%)	0 (0%)
22	Paragraphing	13(86.66%)	2 (13.33%)	0 (0%)
23	Page set-up	15 (100.00%)	0 (0%)	0 (0%)

Table 4.1.1revealsthat 15 (100.00%) respondents indicated that the reception office, trade, distribution, entrepreneurial skills, business opportunities, consumer rights, responsibilities of a consumer, shopping tips, book keeping ethics and memorandum /e-mail were not perceived difficult to teach. However, 15 (100.00%) respondents indicated that printers' correction signs, techniques development in keyboarding and page set-up were perceived very difficult to teach. Moreover, 13 (86.66%) of the respondents indicated that office correspondence, market, bank service, insurance and petty cashbook were not perceived difficult to teach. Also, it was indicated that 13 (86.66%) of the respondents indicated that ledger entries and paragraphing were not perceived very difficult to teach. Moreover, 12 (80.00%) of the respondents indicated that office documents, cashbook and speed development and accuracy skills were not perceived difficult to teach.

Research question 1b: What are the topics identified as perceived difficult to learn by the students in business studies?

Table 4.1.2: Percentages and Frequency of Topics Identified by Students as Perceived Difficult to Learn in Business Studies

	TOPICS	PVDL	PDL	PNDL
1	The Reception Office	3 (0.66%)	284 (63.11%)	163 (36.22%)
2	Office Correspondence	3 (0.66%)	102 (22.66%)	345 (77.66%)
3	Office Documents	0 (0.00%)	166 (36.88%)	284 (63.11%)
4	Trade	1 (0.22%)	185 (41.11%)	264(58.66%)
5	Market	0 (0.00%)	164 (36.44%)	286 (63.55%)
6	Distribution	3 (0.66%)	153 (34.00%)	294 (65.33%)
7	Bank service	0 (0.00%)	150 (33.33%)	300 (67.66%)
8	Insurance	0 (0.00%)	181 (40.22%)	269 (59.77%)
9	Entrepreneurial Skills	0 (0.00%)	197 (43.77%)	253 (56.22%)
10	Business opportunities	0 (0.00%)	197 (43.77%)	253 (56.22%)
11	Consumer Rights	0 (0.00%)	166 (36.88%)	284 (63.11%)
12	Responsibilities of a consumer	1 (0.22%)	199 (42.22%)	251(55.77%)
13	Shopping Tips	0 (0.00%)	106(23.55%)	344 (76.44%)
14	Book Keeping Ethics	0 (0.00%)	171 (38.00%)	279 (62.00%)
15	Ledger Entries	414 (92.00%)	36 (8.00%)	0 (0.00%)
16	Petty cashbook	8 (1.77%)	182 (40.44%)	260 (57.77%)
17	Cashbook	7 (1.55%)	139 (30.88%)	304 (67.55%)
18	Printers correction signs	425 (94.44%)	24 (5.33%)	1 (0.22%)
19	Memorandum/e-mail	8 (1.77%)	152 (33.77%)	290 (64.44%)
20	Speed Development and Accuracy skills	4 (0.88%)	162 (36.00%)	284 (63.11%)
21	Techniques development in Keyboarding	433 (96.22%)	17 (3.77%)	0 (0.00%)
22	Paragraphing	442 (98.22%)	4 (0.88%)	4 (0.88%)
23	Page set up	446 (99.11%)	4 (0.88%)	0 (0.00%)

Table 4.1.2 reveals that 446 (99.11%) of the respondents indicated that page set-up was perceived very difficult to learn, while 442 (98.22%) of the respondents indicated that paragraphing was perceived very difficult to learn. Moreover, 433 (96.22%) of the respondents observed that techniques development in keyboarding was perceived very difficult to learn, while 425 (94.44%) of the respondents indicated that printers' correction mark and signs was perceived very difficult to learn. Moreover, 414 (92.00%) of the respondents indicated ledger entries was very perceived difficult to learn. It was observed that 345 (77.66%) of the respondents indicated that office correspondence was not perceived difficult to learn. It was also observed that 344 (76.44%) of the respondents indicated that shopping tips was not perceived difficult to learn.

Also, 304 (67.55%) of the respondents agreed that cashbook was not perceived difficult to learn, while 300 (66.66%) of them indicated that bank service was not perceived difficult to learn. It was observed that 294 (65.33%) of the respondents indicated that distribution was not perceived difficult to learn. Similarly, 290 (64.44%) of the respondents observed that memorandum/e-mail was not perceived difficult to learn. Moreover, 286 (63.55%) of the respondents indicated that market was not perceived difficult to learn. However, 284 (63.11%) of the respondents indicated that the reception office was perceived difficult to learn, while 284 (63.55%) of them indicated that office document was not perceived difficult to learn. Similarly, 284 (63.55%) of the respondents observed that consumer right was not perceived difficult to learn, while 284 (63.11%) of the respondents indicated that speed development and accuracy skills was not perceived difficult to learn.

Moreover, 279 (62.00%) of the respondents observed that book keeping ethics was not perceived difficult to learn, while 269 (59.77%) of the respondents agreed that insurance was not perceived difficult to learn. Again, 264 (58.66%) of the respondents indicated that trade was notperceived difficult to learn, while 260 (57.77%) of the respondents indicated that petty cashbook was not perceived difficult to learn,

Likewise, 253(56.22%) of the respondents indicated that entrepreneurial skills was perceived not difficult to learn while, 253 (56.22%) of them agreed that business opportunity was not perceived difficult to learn but, 251 (55.77%) of them indicated that responsibilities of a consumer was not perceived difficult to learn.

However, table 4.1.1 reveals that 446 (99%) of the respondents observed that page set-up was perceived very difficult to learn, while 15 (100%) respondents observed that page set-up was perceived very difficult to teach. Moreover, 442 (98%) of the respondents indicated that paragraphing was perceived very difficult to learn, but 13 (89%) of the respondents indicated that paragraphing was perceived very difficult to teach. In addition, 433 (96%) of the respondents observed that techniques development in keyboarding was perceived very difficult to learn, but 15 (100%) respondents observed that techniques development in keyboarding was perceived very difficult to teach.Again, 425 (94%) of the respondents observed that printers' correction signs was perceived very difficult to learn, and 15 (100%) respondents indicated that printers' correction signs was perceived very difficult to teach. Also, 414 (92%) of the respondents indicated that ledger entries was perceived very difficult to learn, while 13 (89%) of the respondents indicated that ledger entries was perceived very difficult to teach.

Discussion

The topics that had the highest percentages that both the students and teachers indicated to be perceived difficult were; techniques development in keyboarding, paragraphing, page set-up, printers' correction signs and ledger entries, the same topics identified by the students and teachers as perceived difficult were selected for this study.

4.2. Testing of Hypotheses

4.2.1 Hypothesis 1a: There is no significant main effect of treatment (computer graphics and animation modes) on junior secondary students' achievement in business studies.

The result of test of hypothesis is presented in Table 4.2.1

Table 4.2.1: Analysis of Covariance (ANCOVA) of Effects of Treatment, Interest and Self-efficacy on Students' Achievement in Business Studies

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6764.854	12	563.738	35.975	.000	.627
Intercept	8261.571	1	8261.571	527.206	.000	.672
Pre-Achievement Test	15.469	1	15.469	.987	.321	.004
Main Effects:						
Treatment	4318.329	2	2159.164	137.785	.000	.517
Interest	195.562	1	195.562	12.480	.000	.046
Self-Efficacy	51.801	1	51.801	3.306	.070	.013
2-Way Interactions Effect						
Treatment*Interest	33.774	2	16.887	1.078	.342	.008
Treatment * Self-Efficacy	220.390	2	110.195	7.032	.001	.052
Interest * Self-Efficacy	.354	1	.354	.023	.881	.000
3-Way InteractionsEffect						
Treatment * Interest * Self-Efficacy	129.688	2	64.844	4.138	.057	.009
Error	4027.312	257	15.670			
Total	184833.000	270				
Corrected Total	10792.167	269				
a. R Squared = .627 (Adjusted R Squared = .609)						

Table 4.2.1 presents the summary of Analysis of Covariance (ANCOVA) of students' posttest achievement scores in business studies by treatment, interest and self-efficacy. The table reveals that after adjustment for the covariate, there is a significant main effect of treatment on students' achievement in business studies, $F_{(2,257)} = 137.79$, $p < 0.05$). The null hypothesis which stated that there is no significant main effect of treatment on students' achievement in business studies was therefore rejected. The partial eta squared estimate was 0.517.

This implies that treatment accounts for 51.7% of the variance observed on the students' academic achievement test in business studies.

Table 4.2.2: Estimated Marginal means of Students' Achievement in Business Studies by Treatment

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Graphics	25.197[a]	.545	24.125	26.269
Animation	30.641[a]	.456	29.743	31.538
Control	19.480[a]	.492	18.510	20.450

Table 4.2.2 shows that students in experimental group II (animation instructional mode) had the highest mean score of $\bar{x}$ = 30.641, followed by students in experimental group 1 (graphics instructional mode) with the means score of $\bar{x}$= 25.197 while, the control group had the least mean score $\bar{x}$=19.480. The difference in their mean scores were statistically significant.

Table 4.2.3: Pairwise Comparison of Students' Achievement in Business Studies by Treatment

(I) Treatment	(J) Treatment	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Graphics	Animation	-5.444[*]	.730	.000	-6.881	-4.006
	Control	5.717[*]	.733	.000	4.273	7.161
Animation	Graphics	5.444[*]	.730	.000	4.006	6.881
	Control	11.161[*]	.672	.000	9.837	12.485
Control	Animation	-11.161[*]	.672	.000	-12.485	-9.837
	Graphics	-5.717[*]	.733	.000	-7.161	-4.273

Table 4.2.3 displays the result of pairwise multiple comparison which indicated that there existed a significant mean difference between the achievement of students in computer graphics and computer animation teaching groups. The mean difference between computer animation instructional mode and computer graphics instructional mode as well as the mean difference between the computer animation instructional mode and control group were significant. In the same vein, the result shows that there existed mean difference between the control group and computer animation instructional mode. The estimated marginal scores were further displayed in figure 4.1.
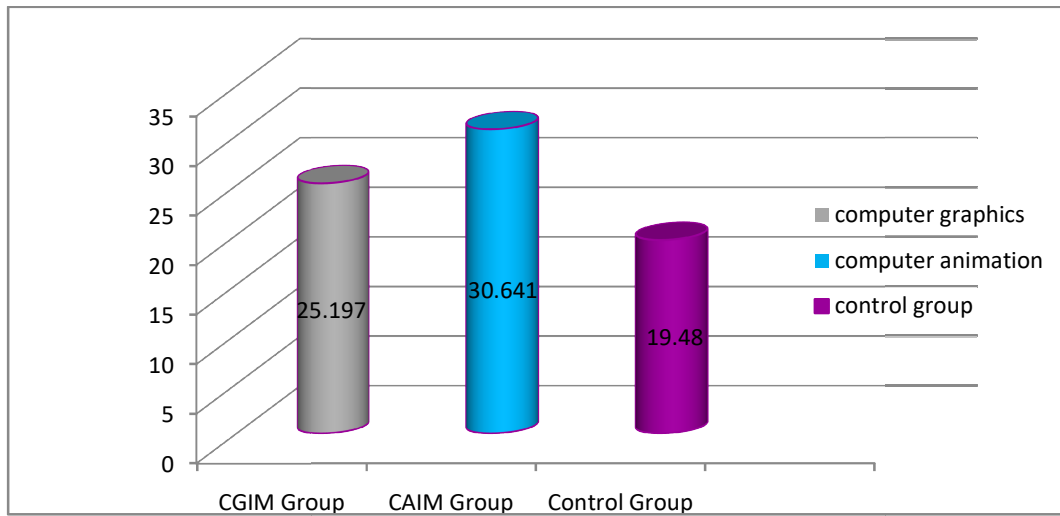
Figure 4.1: Marginal Means of Students' Achievement in Business Studies by Treatment

Hypothesis 2a: There is no significant main effect of interest on junior secondary students' achievement in business studies.

Table 4.2.1 indicates that there was significant main effect of interest on junior secondary students' achievement in business studies, $F_{(1, 257)} = 195.562$; $p < 0.05$.The null hypothesis that stated that there is no significant main effect of interest on junior secondary students' achievement in business studies was rejected.The partial eta squared estimate was 0.046. This implies that interest contributed 4.6% of the variance observed on students'achievement in business studies.

Table 4.2.4: Marginal Means of Students' Achievement in Business Studies by Interest

Interest	Mean	Std. Error	95% Confidence	Interval
			Lower Bound	Upper Bound
Low	24.102[a]	.406	23.303	24.900
High	26.110[a]	.396	25.331	26.890
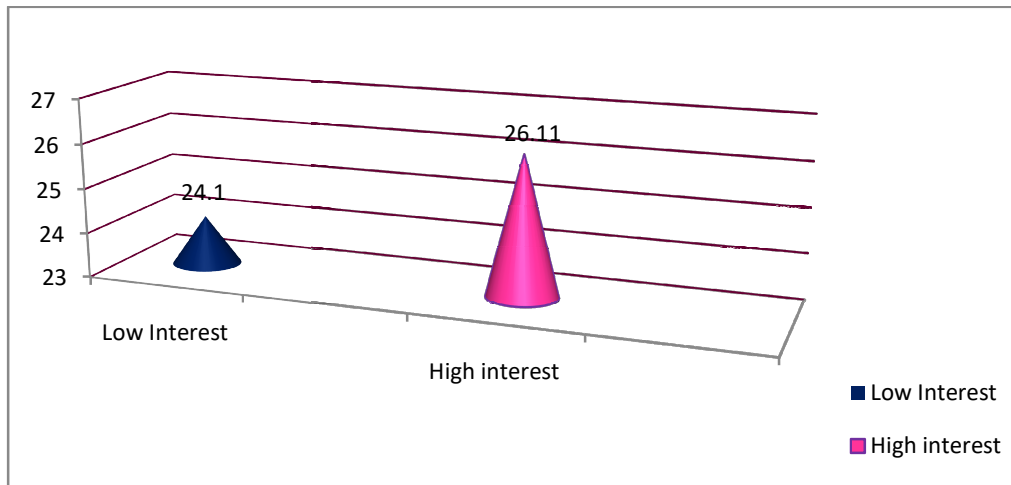
Figure 4.2: Marginal Means of Students' Achievement in Business Studies by Interest

Estimated marginal means in table 4.2.4 and figure 4:2 show that students with high interest had the higher mean with the mean score of $\bar{x}=26.110$, while students with low interest had lower score of $\bar{x}=24.102$. The difference in their mean scores were not statistically significant.

Hypothesis 3a: There is no significant main effect of self-efficacy on junior secondary students' achievement in business studies.

Table 4.2.1 indicates that there was no significant main effect of self-efficacy on junior secondary students' achievement in business studies, $F_{(1,257)} = 3.306$; $p>0.05$. The partial eta squared estimate was 0.013. This implies that students' self-efficacy in business studies accounted for 1.3% of the variance observed in students'achievement in business studies. Consequently, the null hypothesis that stated that there is no significant main effect of self-efficacy on junior secondary students in achievement was not rejected.

Table 4.2.5: Marginal Means of Students' Achievement in Business Studies by Self-efficacy

Self –efficacy	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Low	24.591[a]	.392	23.820	25.367
High	25.620[a]	.408	24.818	26.423

Figure 4.3: Marginal Means of Students' Achievement in Business Studies by Self-Efficacy.

Table 4.2.5 and figure 4.3 presented the estimated marginal means of students' achievement in business studies by self-efficacy. It indicated that students with high self-efficacy had the higher mean score of $\bar{x}$= 25.620, while students with low self-efficacy had the lower mean score of $\bar{x}$ = 24.591. The difference in their mean score was not statistically significant.

Hypothesis 4a: There is no significant interaction effect of treatment and interest on students' achievement in business studies.

The result on table 4.2.1 reveals that there was no significant effect of treatment and interest on students' achievement in business studies, $F_{(2,257)}$ = 1.078; $p > 0.05$. The partial eta squared estimate was 0.008. This implies that students' interest in business studies accounted for 0.8% of the variance observed in students' achievement in business studies. It means that computer graphics instructional mode, computer animation instructional mode and conventional lecture teaching method crossed with interest has no effect on their learning outcome in business studies.

Consequently, the null hypothesis that stated that there is no significant interaction effect of treatment and interest on junior secondary students' achievement in business studies was not rejected.

Table 4.2.6: Estimated Marginal Mean of Students' Achievement in Business Studies by Treatment and Interest

Treatment	Interest	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Graphics Instructional Mode	Low	24.099[a]	.924	22.280	25.918
	High	26.295[a]	.559	25.194	27.396
Animation Instructional Mode	Low	29.198[a]	.619	27.979	30.417
	High	32.084[a]	.640	30.823	33.344
Conventional Teaching Method	Low	19.008[a]	.532	17.960	20.056
	High	19.952[a]	.839	18.300	21.604

Table 4.2.6 presented the estimated marginal mean of students' achievement in business studies by treatment and interest. It is indicated in the table that students with high interest in the animation instructional mode had the higher mean score of ($\bar{x}$= 32.084), followed by students with high interest in the graphics instructional mode with the mean score of ($\bar{x}$=26.295), while students with high interest in the conventional lectureteaching method had the least mean score of($\bar{x}$=19.952). Also, table 4.2.6 showed that students with low interest in the animation instructional mode had the highest mean score of ($\bar{x}$=29.198); followed by studentswith low interest in the graphics instructional mode ($\bar{x}$=24.099), while the students with low interest in the conventional lecture teachingmethod had the least mean score of ($\bar{x}$=19.008). However, the difference in their mean was not statistically significant.

Hypothesis 5a: There is no significant interaction effect of treatment and self-efficacy on students' achievement in business studies.

Table 4.2.1 shows that there was significant interaction effect of treatment and self-efficacy on students' achievement in business studies, $F_{(2,257)} = 7.032$; $p<0.05$. It thus implies that the effect of treatment on students' learning outcome in business studies is sensitive to self-efficacy. As a result, the null hypothesis that stated that there is no significant interaction effect of treatment and self-efficacy on students' achievement in business studies was therefore rejected.

Table 4.2.7: Marginal mean of Students' Achievement in Business Studies by Treatment and Self-efficacy

Treatment	Self-efficacy	Mean	Std.Error	95% Confidence Interval	
				LowerBound	Upper Bound
Graphics Instructional Mode	Low	25.784[a]	.527	24.747	26.822
	High	24.610[a]	.944	22.751	26.468
Animation Instructional Mode	Low	28.757[a]	.710	27.359	30.155
	High	32.524[a]	.538	31.464	33.585
Conventional Method	Low	19.233[a]	.789	17.680	20.786
	High	19.727[a]	.590	18.565	20.889

Table 4.2.7 shows that students with low self-efficacy in the animation instructional mode had the highest mean score ($\bar{x}$= 28.757) in achievement in business studies,followed by students with low self-efficacy in the graphics instructional mode with the mean score ($\bar{x}$= 25.784), while students with low self-efficacyin the conventional teaching method had the lowest mean score ($\bar{x}$ = 19.233). In addition, Table 4.2.7 indicated that students with high self-efficacy in the animation instructional mode had the highest mean score ($\bar{x}$=32.524) in achievement in business studies, followed by students with high self-efficacy in the graphics instructional mode with the mean score ($\bar{x}$= 24.610), but the students with high self-efficacy in the conventional teaching method had the lowest mean score ($\bar{x}$ =19.727). The difference in their mean was statistically significant.

In order to examine the nature of interaction, a line graph was constructed to disentangle the interaction as shown in Fig. 4.4.

Line graph showing the interaction effect of treatment and self-efficacy on students' achievement in business studies
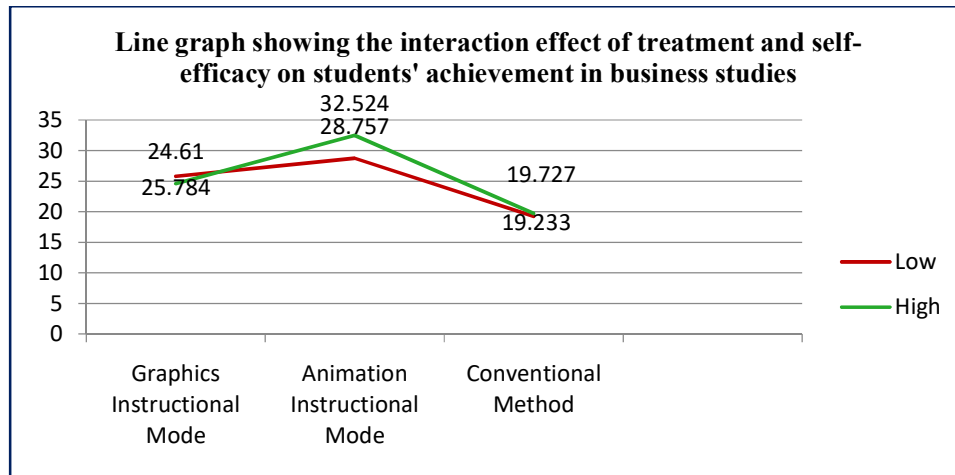
Fig. 4.4:   Interaction Effect of Treatment and Self-efficacy on Students' Achievement in Business Studies

Fig. 4.4: shows that students that have low self-efficacy (25.784) performed better than students that have high self-efficacy (24.610) using graphics instructional mode, but for students who have high self-efficacy (32.524) performed better than students that have low self-efficacy (28.757) in animation instructional mode. In a similar vein, students in conventional lecture teaching method (control group) that have high self-efficacy (19.727) performed better than students who have low self-efficacy (19.233). Observing the interaction critically, one can conclude that the statistical difference was stronger with students who were taught with animation instructional mode, while those who were taught with conventional method had the least mean scores, with the students with high self-efficacy obtaining higher mean score (19.727) than students with low self-efficacy (19.233).

Hypothesis 6a: There is no significant interaction effect of interest and self-efficacy on junior secondary students' achievement in business studies.
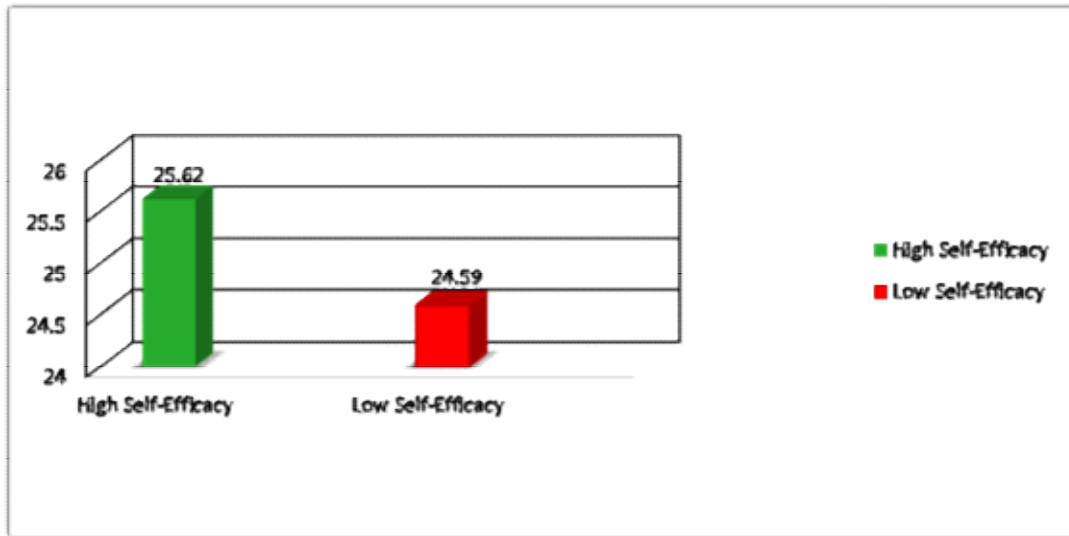
Table 4.2.1 reveals that there was no significant interaction effect of interest and self-efficacy on junior secondary students' achievement in business studies, $F_{(1,257)} = .023$, p>0.05. This implies that interest and self-efficacy had no effect on students' achievement in business studies. Consequently, the null hypothesis that stated that there is no significant interaction effect of interest and self-efficacy on junior secondary students' achievement in business studies was not rejected.

Table 4.2.8: Marginal Mean of Students' Achievement in Business Studies by Interest and Self-efficacy

Business Interest	Self-efficacy	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
High	Low	23.542	.513	22.535	24.554
	High	24.659	.631	23.416	25.901
Low	Low	25.638	.591	24.474	26.803
	High	26.582	.523	25.553	27.611

Table 4.2.8 showsthat students with low self-efficacy in the low interest group studentshad the highest mean score (x=25.638), while students with low self-efficacy in the high interest group had the least mean score (x=23.545). In addition, table 4.2.8 showed that students with high self-efficacy in the low interest group had the highest mean score (x=26.582), while students with high self-efficacy in the high interest group had the least mean score of (x=24.659). The difference in their mean score was not statistically significant. The difference in their mean score was not statistically significant.

Hypothesis 7a: There is no significant interaction effect on treatment, interest and self-efficacy junior secondary students' achievement in business studies.

Table 4.2.1 shows that there was no interaction effect of treatment, interest and self-efficacy on students' achievement in business studies, $F_{(2,257)} = 4.138$; $p>0.05$. Therefore, the null hypothesis which stated that there is no significant interaction effect on treatment, interest and self-efficacy on junior secondary students' achievement in business studies was not rejected.

Hypothesis1b: There is no significant main effect of treatment on junior secondary students' acquisition of skills in business studies.

Table 4.3.1: Analysis of the Analysis of Covariance(ANCOVA)of Students'Acquisition of Skills in Business Studies by Treatment (Graphics, Animation and Conventional Method), Interest and Self-efficacy

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	22818.996	12	1901.583	79.544	.000	.788
Intercept	38460.051	1	38460.051	1608.794	.000	.862
Pre-Skill Acquisition	94.329	1	94.329	3.946	.048	.015
Main Effects:						
Treatment	15678.232	2	7839.116	327.912	.000	.718
Interest	61.254	1	61.254	2.562	.111	.010
Self-Efficacy	559.145	1	559.145	23.389	.000	.083
2-Way Interactions Effect						
Treatment*Interest	22.903	2	11.452	.479	.620	.004
Treatment * Self-Efficacy	860.544	2	430.272	17.998	.000	.123
Interest * Self-Efficacy	4820	1	4820	.202	.654	.001
3-Way Interactions Effect						
Treatment * Interest * Self-Efficacy	36.015	2	18.007	.753	.472	.006
Error	6143.878	257	23.906			
Total	191668.000	270				
Corrected Total	28962.874	269				

a. R Squared = .788 (Adjusted R Squared = .778)

Table 4.3.1 presents the summary of Analysis of Covariance (ANCOVA)of students'posttest acquisition of skills scores in business studies by treatment, interest and self-efficacy. The table indicates that after adjusted for the covariance, there was significant main effect of treatment on students' acquisition of skills in business studies; $F_{(2,257)}$ = 327.91, $p < 0.05$. The null hypothesis which stated that there is no significant main effect of treatment on students' acquisition of skills in business studies was therefore rejected.This implies that the treatment improves students' acquisition of skills in business studies. Also, the table shows that the partial eta squared was estimated to be 0.718. This indicated that treatment accounted for 71.8% of the variance observed on the students' acquisition of skills in business studies. The result of the estimated marginal means and pairwise comparison of students' acquisition of skills in business studies are displayed in table 4.3.1 and table 4.3.2.

Table 4.3.2: Estimated Marginal Means of Students' Acquisition of Skills in Business Studies by Treatment

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Graphics Instructional Mode	28.513[a]	.573	27.385	29.641
Animation Instructional Mode	33.750[a]	.557	32.653	34.848
Control	11.705[a]	.677	10.372	13.039

Table 4.3.2 shows that students in experimental group II (animation instructional mode) had the highest mean score $\bar{x}=$ 33.750 in post-skill acquisition, followed by students in the experimental group I (graphics instructional mode) with the mean score of $\bar{x}=$ 28.513, while students in the control group had the least mean score of $\bar{x}=$ 11.705. The difference in their mean scores were statistically significant.

4.3.3: Pairwise Comparison of Acquisition of Skills in Business Studies by Treatment

(I)Treatment	(J) Treatment	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Graphics	Animation	-5.238*	.801	.000	-7.163	-3.312
	Control	16.807*	.905	.000	14.633	18.892
Animation	Graphics	5.238*	.801	.000	3.312	7.163
	Control	22.045*	.874	.000	19.944	24.146
Control	Graphics	-16.807*	.905	.000	-18.982	-14.633
	Animation	-22.045*	.874	.000	-24.146	-19.944

Table 4.3.3 displays the result of the pairwise multiple comparison which indicated that there existed a significant mean difference between the animation instructional mode and graphic instructional mode groups. The mean difference between the animation instructional mode and graphic instructional mode was significant. The mean difference between the animation instructional mode and control group was significant. Also, the result shows that there existed significant mean difference between the control group and the animation teaching group. However, the results show that the mean difference between the graphics instructional mode and control group was significant. The estimated marginal mean scores were further displayed in the figure 4.5.
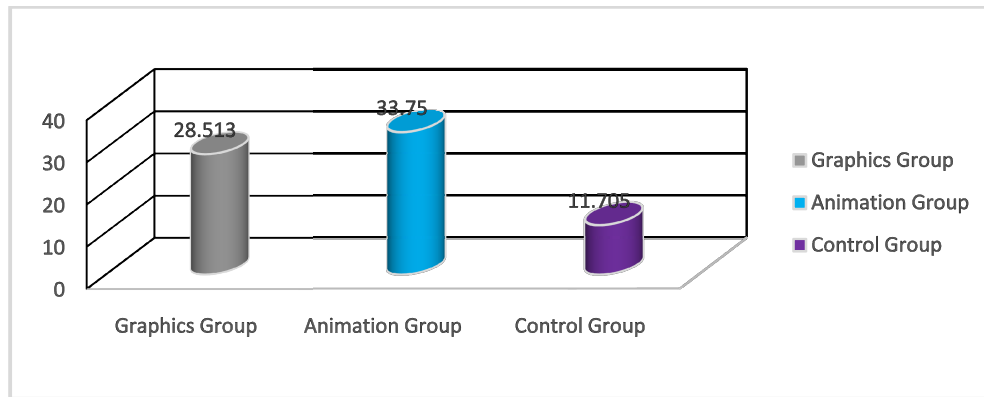
Figure 4.5: Estimated Marginal Means of Students' Acquisition of Skills in Business Studies by Treatment (Computer Graphics, Computer Animation and Control Group).

Hypothesis 2b: There is no significant main effect of interest on students' acquisition of skills in business studies.

Table 4.3.1 shows that there was no significant main effect of interest on students' acquisition of skills in business studies, $F_{(1,257)} = 2.562$, $p > 0.05$. The null hypothesis which stated that there is no significant main effect of treatment on students' interest in business studies was therefore rejected. The partial eta squared estimate was 0.010. This implies that interest contributed 1% of the variance observed on students' acquisition of skillsin business studies.

Table 4.3.4: Marginal Means of students' Acquisition of Skills in Business Studies by Interest.

Business Interest	Mean	Std. Error	% Confidence Interval	
			Lower Bound	Upper Bound
Low	25.208[a]	.431	24.359	26.056
High	24.105[a]	.537	23.046	25.163
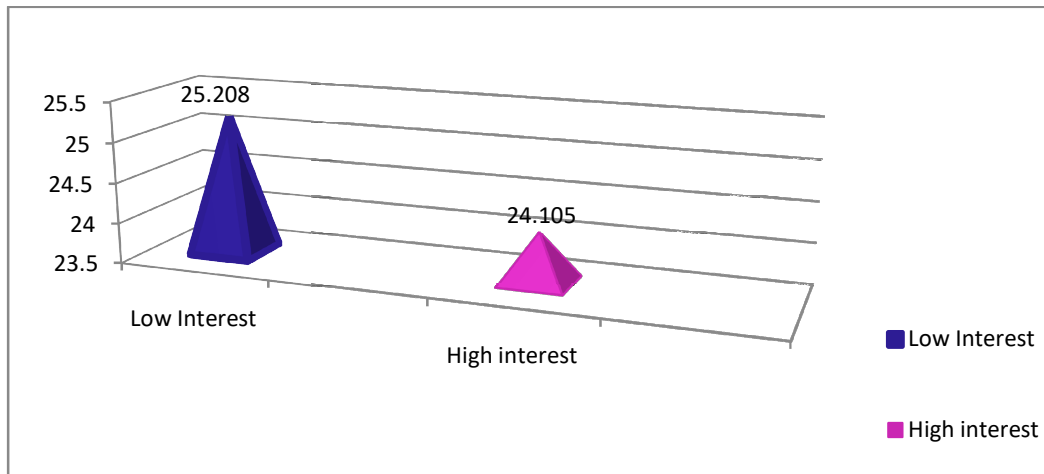
Figure 4.6: Estimated Marginal Means of Students' Acquisition of Skills in Business Studies by Interest

Table 4.3.4 and figure 4.6 show that students' with low interest in business studies had the higher mean score ($\bar{x}$) of 25.208, while the students with highbusiness interest had the lower mean score ($\bar{x}$) of 24.105 This implies that the mean score of students with low business interest is greater than the mean score of students with high interest by 1.103. The differences in the mean score was not statistically significant.

Hypothesis 3b: There is no significant main effect of self-efficacy on junior secondary students'acquisition of skills in business studies.

Table 4.3.1 indicates that there was significant main effect of self-efficacy on junior secondarystudentsacquisition of skills in business studies, $F_{(1,257)} = 23.389$; $p < 0.05$. Consequently, the null hypothesis that stated that there is no significant main effect of self-efficacy on junior secondary students in acquisition of skills in business studies was rejected. The estimated Eta partial squared reveals that self-efficacy contributed only 8.3% of variance observed on students' acquisition of skills in business studies

Table 4.3.5: Estimated Marginal Means of Students'Acquisition of Skills in Business Studies by Self-efficacy

Self –efficacy	Mean	Std. Error	95%Confidence Interval	
			Lower Bound	Upper Bound
Low	22.994[a]	.482	20.044	23.944
High	26.318[a]	.491	25.352	27.284
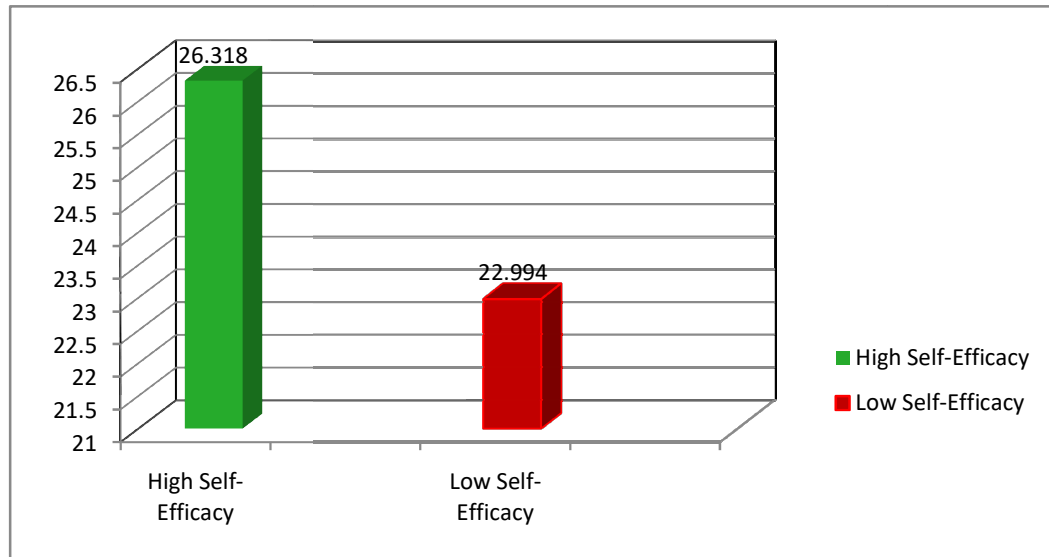
Figure 4.7: **Marginal Means of Students' Acquisition of Skills in Business Studies by Self-efficacy.**

Table 4.3.5 and figure 4.7 presented the estimated marginal means of students' acquisition of skills by self-efficacy. It indicated that there were differences in the estimated marginal means of students in skill acquisition based on their level of self-efficacy. Students with high self-efficacy had the higher mean score of $\bar{x}$= 26.318, while students with low self-efficacy had the lower mean score of $\bar{x}$= 22.994. The difference between the mean score of students with low self-efficacy and high self-efficacy was 3.324. However, the differences in their mean scores were statistically significant.

Hypothesis 4b: There is no significant interaction effect of treatment and interest on junior secondarystudents' acquisition of skills in business studies.

Table 4.3.1 indicated that there was no significant interaction effect of interest on junior secondary students in business studies, $F_{(2,257)}$ =.479 p > 0.05. Consequently, the null hypothesis that stated that there is no significant interaction effect of self-efficacy on junior secondary students' acquisition of skills in business studies was not rejected.

4.3.6: Marginal Mean of Students' Acquisition of Skills in Business Studies by Treatment and Interest

Treatment	Business Interest	Mean	Std.Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Graphics Instructional Mode	Low	29.178[a]	.672	27.855	30.501
	High	27.847[a]	.918	26.040	29.655
Animation Instructional Mode	Low	33.847[a]	.992	32.031	35.662
	High	33.654[a]	.626	32.421	34.887
Control	Low	12.598[a]	.615	11.387	13.810
	High	10.814[a]	1.195	8.458	13.166

Table 4.3.6 presented the estimated marginal mean of students' acquisition of skills in business studies by treatment and interest. It is indicated in the table that students with low interest in theanimation instructional mode had the highest mean score of ($\bar{x}$= 33.847), followed by studentswith low interest in the graphics instructional mode with

the mean score of ($\bar{x}$= 29.178), while students with low interest in the conventional teaching method had the lowest mean score of ($\bar{x}$= 12.598). Also, table 4.3.6 showed that students with high interest in the animation instructional mode had the highest mean score of ($\bar{x}$= 33.654); followed by students with high interest in the graphics instructional mode ($\bar{x}$= 27.847), while the students with high interest in the conventional teaching method had the least mean score of ($\bar{x}$= 10.814). However, the difference in their mean was statistically significant.

Hypothesis 5b: There is no significant interaction effect of treatment and self-efficacy on students' acquisition of skills in business studies, $F_{(2,257)}$ =17.998 $p <$ 0.05. Consequently, the null hypothesis that stated that there is no significant interaction effect of treatment and self-efficacy on junior secondary students' acquisition of skills in business studies was rejected.

Table 4.3.7: Marginal Mean of Students' Acquisition of Skills in Business Studies by Treatment and Self-efficacy.

Treatment	Self-Efficacy	Mean	Std.Error	95% Confidence Interval Lower Bound	UpperBound
Graphic Instructional Mode	Low	24.097[a]	.685	22.748	25.447
	High	32.928[a]	.911	31.134	34.722
Animation Instructional Mode	Low	33.868[a]	.738	32.414	35.321
	High	33.633[a]	.836	31.986	35.280
Control	Low	11.018[a]	1.070	8.911	13.125
	High	12.393[a]	.800	10.818	13.968

Table 4.3.7presented the estimated marginal mean of students' acquisition of skills in business studies by treatment and self-efficacy. It is indicated in the table that students with low self-efficacy in the animation instructional mode had the highest mean score

($\bar{x}$ = 33.868) in skill acquisition in business studies, followed by students with low self-efficacy in the graphics instructional group ($\bar{x}$ = 24.097), while students in the control group had the least mean score ($\bar{x}$ = 11.018). Also, table 4.3.7 showed that students with high self-efficacy in the animation instructional group had the highest mean score($\bar{x}$ = 33,633) in acquisition of skills in business studies, followed by students with high self-efficacy in graphics instructional group with the mean score ($\bar{x}$ = 32.928), while students with high self -efficacy in the control group had the least mean score ($\bar{x}$ = 12.393). The differencein their mean score was statistically significant.

Line graph showing the interaction effect of treatment and self-efficacy on students' acquisition of skills in business studies.

33.868
32.928   33.633
24.097
[VALUE]
11.018

High
Low

Graphics   Animation   Control
Instructional Mode Instructional Mode
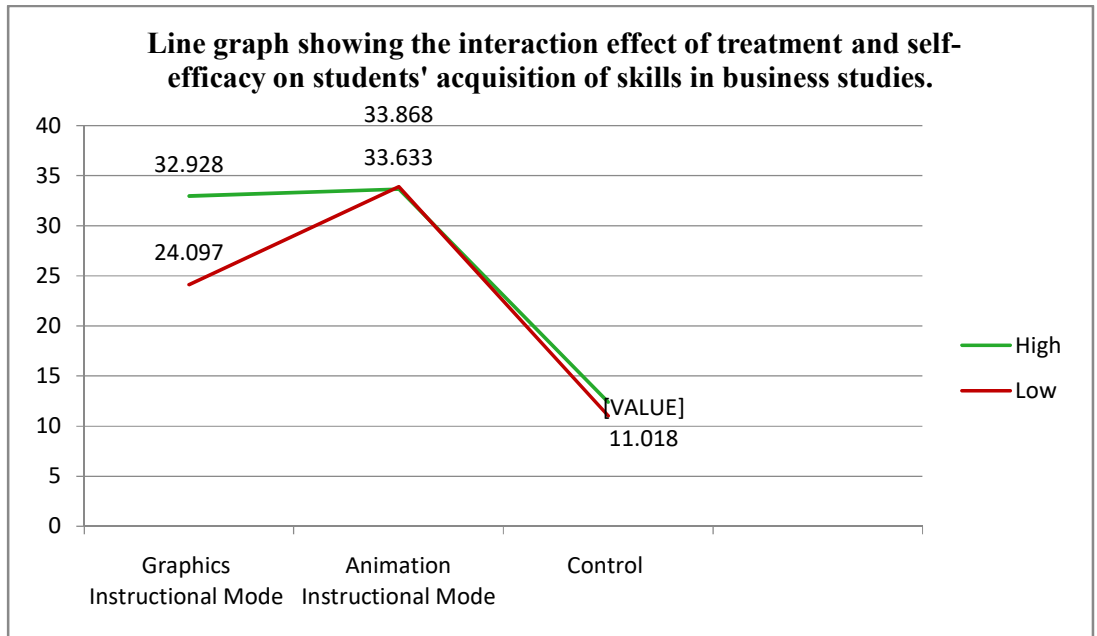
Fig. 4.8: Interaction Effects of Treatment and Self-

efficacy on Students' Acquisition ofSkills in Business Studies.

Table 4.3.7 and fig.4.8 show that students that have high self-efficacy (32.928) performed better than students that have low self-efficacy (24.097) using graphics instructional mode. In similar vein, students who have high self-efficacy (12.393) performed better than students that have low self-efficacy (11.018) using conventional method (control group), but for students in animation instructional mode those who have low self-efficacy (33.868) performed better than students who have high self-efficacy (33.633). Observingthe interaction critically, one can conclude that the statistical difference was stronger with students who were taught with animation instructional mode, while those who were taught with conventional method had the least mean scores, with the students with high self-efficacy obtaining higher mean score (12.393) than students with low self-efficacy (11.018).

Hypothesis 6b: There is no significant interaction effect of interest and self-efficacy on junior secondary students' acquisition of skills in business studies.

Table 4.3.1 reveals that there was no significant interaction effect of interest andself-efficacyon students' acquisition of skillsin business studies, $F_{(1,257)}$ = .202; p>0.05. Consequently, the null hypothesis that stated that there is no significant interaction effect of interest and self-efficacy on junior secondary students' acquisition of skills in business studies was not rejected.

Table 4.3.8: **Marginal Mean of Students' Acquisition of Skills in Business Studies by Interest and Self-efficacy**

Interest	Self-efficacy	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Low	Low	23.391	.583	22.244	24.539
	High	27.024	.637	25.770	28.277
High	Low	22.597	.771	21.078	24.116
	High	25.612	.745	24.146	27.078

Table 4.3.8 showed that students with high self-efficacy in the low interest group had the highest mean score ($\bar{x}$ = 27.024) in acquisition of skills in business studies, while students with low self-efficacy in the high interest group had the least mean score ($\bar{x}$ = 22.597) in acquisition of skills in business studies. In addition, table 4.3.8 showed that students with high self-efficacy in the high interest group had the highest mean score ($\bar{x}$= 25.612), while students with low self-efficacy in the low interest group had the least mean score ($\bar{x}$= 23.391). The difference in their mean scores was not statistically significant.

Hypothesis 7b: There is no significant interaction effect of treatment, interest and self-efficacy on junior secondary students' acquisition of skills in business studies.

Table 4.3.1 reveals that there was no significant interaction effect of treatment, interest andself-efficacy on students' acquisition of skillsin business studies, $F_{(2,257)}$ = 0.753; p >0.05. Therefore, the null hypothesis that stated that there is no significant interaction effect of interest and self-efficacy on junior secondary students' acquisition of skills in business studies was not rejected.

4.2   Discussion

4.2.1   Main Effect of Treatment on Junior Secondary Students'Achievement in Business Studies

The result showed that there was a significant main effect of treatment (computer graphics and computer animation instructional modes) on junior secondary students' achievement in business studies. The findings of the study showed that treatment improved the performance the of students in business studies. The students who were taught with animation instructional mode had the highest improved performance in business studies, followed by the students that were taught with graphic instructional mode, while those in control group performed the least. The students in animation group made greater improvement in their performance than those students in both the graphics and control groups.

The result showed that the existence of variation in students' scores in business studies was due to manipulation of treatment. The result clearly showed the potency of animation and graphics groups over the conventional teaching method. The improvement observed in their performance as discovered in this study could be

as a result of the effectiveness of computer graphics and animation instructional modes that were introduced, which allowed students to comprehend the information through diagrams in motion provided by visual stimuli. Also, the orientation given to the students before the treatment might have contributed significantly to their performance.

Furthermore, the conducive environment filled with real life objects (animated and graphics) to learn, might have improved their level of understanding. This study is in support of the study carried out by Hoffler and Leutner (2007) that investigated the effect of instructional animation versus static pictures and found that the meta-analysis revealed that animation is superior over static picture presentation. Likewise, Gokhan (2013)discovered that computeranimation technique is more effective than traditional teaching methods in terms of enhancing learners' achievement. Also, the finding of this study corroborates that of Rahmat (2010)that computer animation learning courseware had a positive impact on students' performance in visual art education subject.

In the same vein, Hwang, Tam, Lam and Lam (2012) investigated the use of animations as supplementary learning material of physiology content in four academic years, the study discovered that animation is effective in improving learners' academic achievement. Moreso, the finding of the study agrees with the findings of Udousoro (2000) and Egunjobi (2002)thatcomputer based instructional strategies have positive significant effects on students' achievement in mathematics and geography. Also, Owolabi and Oginni (2014) ascertained that there is a significant difference in the performance of science students exposed to cartoon animation than their counterparts exposed to lecture method only.

In addition, the finding is in consonance with the findingof Aremu and Sangodoyin (2010) that there is a significant main effect of treatment on students' achievement in biology and that computer animation was effective in improving students' achievement.The difference is in favour of the students exposed to treatment. Likewise, Gambari, Falode and Adegbenro (2014)discovered that computer animation and geometrical instructional model on mathematics achievement was effective in improving students' performance. However, the finding of this study contradicts the results of Carpenter, Crawford and Walden (2007), Haselden (2011) and Ivers and Helton (2016) in their separate studies indicated that traditional teaching

was more effective than the experimental groups who received instructions through hand-on learning and use of manipulative.

4.2.2 Main Effect of Treatment on Junior Secondary Students' Acquisition of Skills in Business Studies

The result showed that there was a significant main effect of treatment (computer graphics and animation instructional modes) on junior secondary students' acquisition of skills in business studies. This implies that computer graphics and computer animation increase students' acquisition of skills in business studies. It was unveiled that students who were taught with animation instructional mode had the highest mean score in acquisition of skills in business studies, followed by students who were taught with graphics instructional mode, while those taught with conventional method had the least mean score. This implies that computer graphics and animation instructional modes should be used to teach the skills aspect in business studies. When a good instructional method like animation or graphics instructional mode is employed and implemented, students' acquisition of skills is improved and enhanced.

The finding is in support of the study of Allens (2007) whodiscovered that students improve in skills when learning is done through the use of manipulatives. Also, this finding corroborates the findings of Stohmeyer (2007) and Amadi (2012) that found a significant positive influence of entrepreneurial skill acquisition and tertiary education on enterprise creation. This finding is in tandem with the finding of Hisham and Mohammed (2017)thatindicated effectiveness of the graphic program acquisition of some of the media skills for mass communicators at schools. However, the finding disagrees with the study of Dasmani (2011) that found a low correlation between entrepreneurial skills and paid employmentThe implication of this finding is that any business studies teacher who aims at improving students' skills in business studies should embrace graphics and animation instructional modes rather than conventional method.

4.2.3 Main Effect of Interest on Junior Secondary Students' Achievement in Business Studies

The finding revealed that there was a significant main effect of interest on junior secondary students' achievement in business studies. This study showed that students

with low interest had the highest mean score while the students with high interest had the least mean score. This finding is in consonance with Essien, Akpan and Obot (2015)who conducted research on students' interest in social studies and academic achievement in tertiary institutions, the result of the analysis revealed that students' interest in social studies, significantly relates to their achievement in the subject. Also,   the finding of this study agrees with the study by Mc Clnerney, Dowson, Young and

Nelson (2005)that interest had significant positive impacts on students' achievement in school work.

This finding supports the view of Benton, Corkill, Sharp, Downey and Khramstove (1991) and Kpolovie, Joe and Okoto (2014) that there was a significant interaction effect between interest and academic achievement. In the samevein, Joseph (2013)investigated the associations among classroom emotional processes, student's interest, and engagement, the results showed that students' interest in learning

exert a positive and significant effect on learning outcomes in Tawanese colleges with 0.46 standardized path coefficient. Alexander, Jetton and Kulikowich (1995) found that there is a positive correlation between mathematics and physics. Also, Honicke and Broadbent (2016) found thatthere was a significant relationship between achievement and interest in mathematics.

The finding alsosupports that of Hidi in Obafemi (2014)that there is a significant relationship between interest and academic achievement. This finding is in agreement with the studies of Silvia (2006) and Paul (2013)that students' interest in learning and their academic achievement significantly correlated positively. However, the finding of this study contradicts the study by Yu-je (2011)that significant relationship does not exist between students' interest in learning and their academic achievement.

4.2.4 Main Effect of Interest on Junior Secondary Students' Acquisition of Skills in Business Studies

The result revealed that there was no significant main effect of interest on junior secondary school students' acquisition of skills in business studies. The study showed that students with high interest in acquisition of skills in business studies had the highest mean score while the students with low interest in skills acquisition had the

least mean score. This result is in line with the findings of Abanikannda (2018)who investigated the effects of technology tools on students' interest in biology. His findings revealed that students who make use of technology tools for learning in high schools influence their interest in learning biology, but technology tools for learning biology are scarce.

4.2.5 Main Effect of Self-Efficacy on Junior Secondary Students' Achievement in Business Studies

The result revealed that there was no significant main effect of self-efficacy on junior secondary school students' achievement in business studies. This means that self-efficacy of students, irrespective of the level (high or low), does not in any way affect their academic performance. In other words, whether self-efficacy of students is high or low, their achievement in business studies is not likely to be affected if any of the teaching method is used by the business studies teacher. Thus, self-efficacy is not a factor to be considered in the improvement of students' achievement in business studies. The findings of this study confirms the study of Durowoju (2014)thatfound no significant effect of self-efficacy on students' achievement in commerce.In the same vein, Ilori (2004) observed no significant relationship between self-efficacy and academic achievement of secondary school students.

On the other hand, the finding disagrees with the study of Liu and Koirala (2009)thatfound a positive relationship between mathematics self-efficacy and mathematics learning outcomes. This finding also contradicts the studies of Tenaw (2013)that established a significant effect of self-efficacy on students' achievement in analytical chemistry. Furthermore, the result of this study is not in agreement with the study of Olosunde, Oyegoke and Ojebisi (2016)that self-efficacy is a factor to be considered in predicting performance in mathematics. In the same vein, Schunk (2003)also provided additional support for the impact of self-efficacy on educational achievement. This finding also negates the study of Mara de (2014) whoinvestigated the relationship between self-efficacy and academic achievement in adult learners. The analysis of the data indicated that students' level of self-efficacy is high and a significant relationship exists between self- efficacy and academic achievement.

Also, the finding of Shkullak (2013) found a significant relationship between the students' self-efficacy and academic performance in a study of 280 Albanian universities students. In addition, the finding of this study contradicts the findings of (Lau and Roeser,2002; Kupermintz, 2002;Lodewyk and Winne,2005; Britner,2008and Kiran and Sungur, 2011) that there is a positive and significant correlation between self-efficacy and achievement. The reason why there was no significant main difference of self-efficacy on students' achievement in business studies, could be attributed to the difference in sample sizes and geographical locations used by other researchers. Also, most of the researchers employed survey design as against experimental design adopted in this study. Furthermore, other factors aside self-efficacy, could have contributed to students' achievement in business studies.

4.2.6 Main Effect of Self -Efficacy on Junior Secondary Students' Acquisition of Skills in Business Studies

The result revealed that there was significantmain effect of self-efficacy on junior secondary school students' acquisition of skills in business studies. The findings showed that self-efficacy improves students' acquisition of skills in business studies. The finding of this study is in tandem with the study of Durowoju (2014) whoestablished a significant main effect of self-efficacy on students' attitude to commerce and argued that self-efficacy beliefs influence students' perception, skill, interest and motivation. Also, the finding of this study is of the view of Schunk (1985) that self-efficacy enhances curiosity to acquire skills. However, the finding of this study disagrees with the finding of Silvia (2006)that self-efficacy does not affect skill acquisition positively. This finding implies that self-efficacy is a factor to be considered in stimulating the skills of students in business studies, using either graphics or animation instructional modes.

4.2.7Interaction Effect of Treatment and Interest on Junior Secondary Students'Achievement in Business Studies

The result indicated no significant interaction effect of treatment and interest on students'achievement in business studies. This implies that treatment and interest when taken together had no significant effect on students'achievement in business studies. The interaction effect of treatment and interest accounted for less than one

percent of the variance observed on students' achievement in business studies. Though, the effect of treatment and interest, when taken separately has significant effect on students'achievement in business studies.

It may mean that the sampling techniques used in the study did not consider the disparity in the level of students' interest, whether high or low, that is, students were randomly assigned to treatment group without prejudice to their level of interest. This may seem to be why the interaction effect of treatment and interest did not produce   a significant effect on students' achievement in business studies. The finding is in agreement with the study of Essien, Akpan and Obot (2015)that revealed no significant interaction effect of instructional strategies and students' interest in social studies on students'academic achievement.

4.2.8 Interaction Effect of Treatment and Interest on Junior Secondary Students' Acquisition of Skills in Business Studies

The interaction effect of treatment and interest on students' acquisition of skills in business studies was not significant. Treatment and interest when taken jointly had no interaction effect on students' skill acquisition in business studies. The interaction effect of treatment and interest was less than one percent of the variance observed in students. The reason adduced to this result is that the sampling techniques used in the study did not consider any disparity in the level of students' interest, whether high or low, that is, students were randomly assigned to treatment group, irrespective of their level of interest, either high or low. This may seem to be why the interaction effect of treatment and interest did not produce a significant effect on students' skills acquisition in business studies.

4.2.9 Interaction Effect of Treatment and Self-efficacy on Junior Secondary Students'Achievement in Business Studies

The finding indicated that there was significant interaction effect of treatment and self-efficacy on students'achievement in business studies. Though, this finding revealed that when self-efficacy is taken separately, it had no significant effect on achievement in business studies. This implies that treatment and self-efficacy jointly had influence on students'achievement in business studies. This result probably may be as a result of the orientation given to students before the commencement of the

treatment. They were asked to build up high self-efficacy towards the knowledge of business studies.

The finding of the study is in consonance with the finding of Akujieze (2013) that found asignificant effect of learning strategies and self-efficacy on students' achievement. Also, the finding agrees with the finding of Bates and Khasawneh (2007)who investigated the influence on the perception of self-efficacy in online learning, indicated that the successes the students obtained in the past in online contexts influence their self-efficacy. However, the finding of the study disagrees with the study of Durowoju (2014) that the combination of treatment employed in the study and self-efficacy had no significant effect on students'achievement in commerce.

4.2.10 Interaction Effect of Treatment and Self-efficacy on Junior Secondary Students' Acquisition of Skills in Business Studies

The interaction effect of treatment and self-efficacy in business studies was significant. This implies that treatment and self-efficacy had significant interaction effect on students' acquisition of skills in business studies.

4.2.11 Interaction Effect of Interest and Self-efficacy on Junior Secondary Students'Achievement in Business Studies.

The interaction effect of interest and self-efficacy on students' achievement in business studies was not significant. The interaction effect of interest and self-efficacy accounted for zero percent of the variance observed in students' achievement in business studies. This simply means that interest and self-efficacy do not have interference effect on learners' achievement in business studies.

4.2.12 Interaction Effect of Interest and Self-efficacy on Junior Secondary Students' Acquisition of Skills in Business Studies.

The interaction effect of interest and self-efficacy on students' acquisition of skills in business studies was not significant. The interaction effect of interest and self-efficacyaccounted for zero percent of the variance observed in students' acquisition of skills in business studies. This simply means that interest and self-efficacy do not have interference effect on students' acquisition of skills in business studies. Students

of different interest and levels of self-efficacy had the same acquisition of skills in business studies.

4.2.13 Interaction Effect of Treatment, Interest and Self-efficacy on Junior Secondary Students' Achievement in Business Studies.

The interaction effect of treatment, interest and self-efficacy on students' achievement in business studies was not significant. The study unveiled that considering each of the variables separately, treatment and self-efficacy had significance effect on students' achievement in business studies while interest, when considered individually and jointly, produced no significance on students' achievement in business studies. The three variables, when taken together, had no significant effect on students' achievement in business studies. The interaction effect of treatment, interest and self-efficacy accounted for less than one percent of the variance observed in students' achievement in business studies. It is indicated that students' achievement in business studies was not influenced by the joint interaction effect of treatment, interest and self-efficacy.

4.2.14 Interaction Effect of Treatment, Interest and Self-efficacy on Junior Secondary Students' Acquisition of Skills in Business Studies.

The interaction effect of treatment, interest and self-efficacy on students' interest and self-efficacy on students' acquisition of skills in business studies concepts was not significant. The study revealed that when each of the variables is taken separately, treatment and self-efficacy had significant influence on students' acquisition of skills in business studies, except for interest. Again, when considered together, interest and self-efficacy do not have significant interaction effect on students' acquisition of skills in business studies. The three variables when taken together had no significant effect on students' acquisition of skills in business studies. The interaction effect of treatment, interest and self-efficacy accounted less than one percent of the variance observed in students' acquisition of skills in business studies. This implies that treatment, interest and self-efficacy had no interaction effect on students' acquisition of skills in business studies.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of the study, the conclusion and the recommendations.

5.1   Summary of the Study

The study examined the effect of computer graphics and animation instructional modes on junior secondary students' achievement and acquisition of skills in business studies in Ibadan, Oyo State, Nigeria. One research question was answered and seven hypotheses were tested at 0.05 level of significance. A total number of 270 JS two students selected from nine schools in Ibadan took part in the study. Three stimulus and four data collection instruments were used for the study and the obtained data were analysed using descriptive statistics and Analysis of Covariance (ANCOVA).

The major findings of the study are summarised as follows:

1(a)   The five topics identified by students as perceived difficult to learn topics are: techniques development in keyboarding, paragraphing, page set-up, printers' correction signs, and ledger entries.

 (b)   The same five topics identified by students as perceived difficult to learn were also identified by teachers as perceived difficult to teach topics. The topics are techniques development in keyboarding, paragraphing, page set-up, printers'

correction signs, ledger entries. Hence, the topics both the teachers and students identified as perceived difficult were the topics selected for the study.

2. There was a significant main effect of treatment (computer graphics and computer animation instructional modes) on students'achievement in business studies. There was a significant difference in achievement test scores in business studies between the participants in animation instructional mode and control. Also, computer graphic differs significantly from the control. There exists significant difference between the mean scores of computer animation and computer graphics instructional modes.

3. There was a significant main of effect treatment (computer graphics and animation instructional modes) on students' acquisition of skills in business studies.

4. There was a significant main effect of interest on students' achievement in business studies.

5. There was no significant main effect of interest on students' acquisition of skills in business studies

6. There was no significant main effect of self-efficacy on students'achievement in business studies.

7. There was a significant main effect of self-efficacy on students' acquisition of skills in business studies.

8. There was no significantinteraction effect of treatment (computer graphics and animation instructional mode) and interest on students'achievement in business studies.

9. There was no significantinteraction effect of treatment (computer graphics and animation instructional mode) and interest on students' acquisition of skills in business studies.

10. There was asignificantinteraction effect of treatment (computer graphics and animation instructional mode) and self-efficacy on students'achievement in business studies.

11. There was a significantinteraction effect of treatment (computer graphics and animation instructional mode) and self-efficacy on students' acquisition of skills in business studies

12. There was no significantinteraction effect of interest and self-efficacy on students'achievement in business studies.

13. There was no significantinteraction effect of interest and self-efficacy on students' acquisition of skills in business studies.

14. There was no significantinteraction effect of treatment (computer graphics and animation instructional mode) interest and self-efficacy on students'achievement in business studies.

15. There was no significant interaction effect of treatment (computer graphics and animation instructional mode) interest and self-efficacy on students' acquisition of skills in business studies.

5.2   Conclusion

The result of this study provides empirical evidence that there is a significant main effect of the computer graphics and animation instructional modes on students' achievement and acquisition of skills in business studies. This is an indication that students perform better when the appropriate teaching method is used to teach. The primary aim of providing appropriate teaching method is for students to be successful, develop positive attitude towards the subject and to effect behavioural changes. The use of appropriate teaching method can be effective in teaching and learning. This is evident that teaching method adopted by the teacher influenced the students' learning outcome significantly. Whereas, appropriate teaching method would facilitate the grasping of new concepts, inappropriate teaching method is likely to constrain knowledge retention and application (Azuama, 2004). In this regard, the use of appropriate teaching method to deliver lessons had a greater impact than the content covered in a course of study.

It was also discovered in this study that full incorporation of contemporaryskill into our instructivescheme would be further beneficial to the instructivescheme.   The study showed that students learn better when given opportunity to use moving pictures and objects to learn in a natural environment, interact with themselves in small groups or work together as a team. It encourages the students to focus on a topic being discussed and contribute to the free flow of ideas. Also, the teacher provides a conducive learning environment for the students to work in groups as a team and the teacher as a facilitator. Animation instructional mode is a teaching method which gives a good way of getting bright ideas and help students perform better in business studies.

In the same vein, the study discovered that graphic instructional mode presents learning to students in a practical and a real natural environment. It gives learners first-hand information on the aspect of the topic being discussed; it allows students to practice what they are taught; it promotes better performance than the orthodox teaching method. In all, the outcomediscovered that computer graphics and animation instructional mode were set up to be furtheroperative than the orthodoxtechnique. The result showed that those who are exposed to conventional methodtechnique had a lower mean score in learning outcome and acquisition of skills in business studies.

5.3   Implications of the Findings for the Study

The findings of this study have many implications for major educational stakeholders in education. This stakeholder includes: the students, teachers, school administrators and policy makers.

Students

The study has shown that computer graphics and animation instructional modes are operative in educating students' accomplishment and acquisition of skills in business studies. Business Studies students should develop a high interest to the learning of business studies. A student who has a high interest in business studies will put in all his or her best to perform excellently, while a student who has low interest believes he or she cannot perform well in business studies. The use of animation instructional mode enables students to develop a high interest and have a sense of cooperation when working as a group to achieve their goals.

Computer graphics instructional mode fosters the development of critical and brighter thinking which intend to bring about students to effectively interact among themselves, observing the need to improve their learning outcomes in business studies. Students should be ready at all times to be actively involved in the instructional activities. They should work diligently to ensure that the skills be inculcated in them. Students should develop a high interest in business studies in order to enhance performance. It is very obvious that students who have a low interest in business studies will not work hard. In fact, several researchers have suggested that interest affects academic achievement. However, students must be made to change their attitude from low interest to high interest in business studies and also to see the benefits of acquiring sound knowledge in subject like business studies.

Teachers

On the basis of the findings of this study, there is a need for business studies teachers to review their teaching methods to be student-centered whereby the student will be allowed to participate fully and not just to listen to the teachers. It is imperative for teachers to note that inappropriate use of manipulative tools (computers) may hinder learning, apart from not being effective. Thus, if the purpose of instruction is to enhance performance on students, both computer graphics and animation instructional modes are beneficial to students and if learning is to be effective, teachers of business

studies must see teaching as a way of developing and enhancing students' ability to learn with less supervision.

Therefore, it is necessary to include computer graphics and animation instructional modes in the business studies curriculum, most especially the skills aspects. This might help the subject teachers in working with students whose performance is low to improve their learning outcomes. Teachers should therefore have adequate knowledge and be able to plan very well as regards to what, when and how to use manipulative tools (computers). In addition, it is recommended that seminars and workshops should be systematised for business studies teachers on a regular basis to improve their teaching methods and improve their knowledge on the course contents.

School Administrators

Efforts should be made by the school administrator to ensure that there is an improvement in learning outcome through the use of computer graphics and animation instructional modes. There is a need to set up monitoring units to ensure that business studies teachers implement computer graphics and animation instructional modes to teach the skill aspects of the curriculum. Encouragement should be given to students, while this methodology is being used. For self-efficacy and interest, with regards to business studies, learning outcomes, school administrators should encourage students, make them to understand and develop a high interest and high self-efficacy in business studies. Also, students should be made to understand that these computer graphics and animation instructional modes will help them to understand better as they follow all the instructions given to them by their teachers. Teachers are encouraged to appreciate the students' efforts when deserved.

5.4   Recommendations

1   Computer graphics and animation instructional modes should be adopted in teaching skills aspect in business studies.

2.   Students should see computer graphics and animation instructional modes as an
improvement over the present method of teaching the skill aspects in business studies.

3. There is a need for curriculum planners to ensure that the skills aspect of business studies is taught practically with the use of computersas specified in the curriculum.

4. There is a need for the government to organise seminars, workshops andconferences for teachers to enlighten them on the use of these teaching methods.

5. There is a need for curriculum planners to revise the business studies curriculum, to give room for more practical topics and activities that will enhance the development of the nation.

6. Students cognitive learning style should be adopted to identify some students who are not learning at the same pace with their peers.

7. More time should be created for practical sessions to enable learners acquired the needed classroom experiences.

8. There should be adequate provision of computers and computer laboratories in schools, to enhance the effective delivery of instructions.

9. Qualified teachers should be employed to teach business studies, while those who lack professional qualities should be retrained.

5.5 Limitations of the Study

The study was limited to public secondary schools in Ibadan, Oyo State, therefore the findings cannot be generalized to private secondary schools. The scope of this study was limited to junior secondary school II students in Ibadan North, Ibadan North West and Akinyele Local Government Areas. This study did not cover all the topics in the J.S.II curriculum.

5.6 Suggestions for Further Studies

The study investigated the effect of computer graphics and animation instructional modes on junior secondary school two students' achievement and acquisition of skills in business studies. Therefore, it is suggested here, that the study should be replicated in learning other subjects in junior secondary schools.

It also suggested that this study should be carried out in both private and federal government schools. Further study can be carried out on the effect of different variables on computer graphics and animation instructional modes such as personality

traits, motivation, social economic status and school location, to mention but a few. Further replication should also be carried out in other states, to allow for comparison.

In addition, understanding how students learn in the classroom could serve as the key factor for promoting academic success among students since not every student learns at the same pace, but benefit differently. Hence, research should be carried out on "Classroom climate, students' attitudes and behaviour and academic achievement" in any chosen area.

Finally, further studies can be carried out to examine the effectiveness of each of these teaching methods, that is, computer graphics and animation instructional modes, this will provide empirical evidence for ascertaining the significance of each of these teaching methods. This will as well provide baseline for recommending computer graphics and animation instructional modes, for use in junior secondary school.

5.7   Contribution to Knowledge

Though there are several studies carried out on computer graphics and animation instructional modes, to theresearcher's best of knowledge, these studies are carried out in science related subjects and using senior secondary school students or higher institutions. This study is different; the sample used for the study is junior secondary school students to examine the effect of computer graphics and animation instructional modes on junior secondary two students' academic achievement and acquisition of skills in business studies in Oyo State. From the result, it shows that these methods could be employed at improving the teaching and learning of business studies, most especially, the skills aspects.

The teaching methods have proved that when students are allowed to participate during teaching and learning (student-centered), they do better. Also, when animation method is used, whereby students are taught in a real natural environment seeing objects and pictures moving, it helps to improve the learning outcomes of students.

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INSTITUTE OF EDUCATION

INTERNATIONAL CENTRE FOR EDUCATIONAL EVALUATION

UNIVERSITY OF IBADAN

BUSINESS STUDIES PERCEIVED DIFFICULT TO TEACH CONCEPTS

QUESTIONNAIRE. (BSPDTTCQ)

Dear Respondent,

This Business Studies questionnaire is designed purposely for educational research. It is meant to find out the topics in Business Studies that are difficult to teach by practicing teachers. Kindly supply the information required in the spaces provided. All information will be strictly used for academic purpose and treated confidentially.

Thanks for your anticipated cooperation.

Instruction: Please tick ( ) the box, applicable to you.

SECTION A: (Demographic Data).

Gender: Male ( )   Female ( )

Name of School _____

SECTION B: PERCEIVED DIFFICULT TO TEACH CONCEPTS

 For the following items, tick the most applicable option that best explains your level of difficulty in teaching Business Studies.

Items Response: Perceived Very Difficult to Teach – PVDT

Perceived Difficult to Teach   -- PDT

Perceived Less Difficult to Teach – PLDT

S/N	TOPICS	PVDT	PDT	PLDT
1	The reception office			
2	Office correspondence			
3	Office documents			
4	Trade			
5	Market			

6	Distribution			
7	Bank service			
8	Insurance			
9	Entrepreneurial skills			
10	Business opportunities			
11	Consumer rights			
12	Responsibilities of a consumer			
13	Shopping tips			
14	Book keeping ethics			
15	Ledger entries			
16	Petty cashbook			
17	Cashbook			
18	Printers' correction signs			
19	Memorandum/e-mail			
20	Speed development and accuracy skills			
21	Techniques development in keyboarding			
22	Paragraphing			
23	Page set-up			

APPENDIX II

INSTITUTE OF EDUCATION
INTERNATIONAL CENTRE FOR EDUCATIONAL EVALUATION
UNIVERSITY OF IBADAN
BUSINESS STUDIES PERCIEVED DIFFICULT TO LEARN CONCEPTS
QUESTIONNAIRE (BSDLCQ)

Dear Respondent,

This Business Studies questionnaire is designed purposely for educational research. It is meant to find out the contents in Business Studies that are difficult to learn. Kindly supply the information required in the spaces provided. All information will be strictly used for academic purpose and treated confidentially.

Thanks for your anticipated cooperation.

Instruction: Please tick ( ) the box, applicable to you.

SECTION A: (Demographic Data).

Gender: Male ( )   Female ( )

Class: J.S. II

Age: 11-12 years ( ) 13-14 years ( )   15years and above ( )

Name of School: _____

SECTION B: PERCEIVED DIFFICULT TO LEARN CONCEPTS

For the following items, tick the most applicable option that best explains your level of difficulty in learning Business Studies.

Items Response: Perceived Very Difficult to Learn   --   PVDL

Perceived Difficult to Learn   -- PDL

Perceived Less Difficult to Learn   – PLDL

S/N	TOPICS	PVDL	PDL	PLDL
1	The Reception Office			
2	Office Correspondence			
3	Office Documents			

4	Trade			
5	Market			
6	Distribution			
7	Bank service			
8	Insurance			
9	Entrepreneurial Skills			
10	Business opportunities			
11	Consumer Rights			
12	Responsibilities of a consumer			
13	Shopping Tips			
14	Book Keeping Ethics			
15	Ledger Entries			
16	Petty cashbook			
17	Cashbook			
18	Printers correction signs			
19	Memorandum/e-mail			
20	Speed Development and Accuracy skills			
21	Techniques development in Keyboarding			
22	Paragraphing			
23	Page set-up			

INSTITUTE OF EDUCATION

UNIVERSITY OF IBADAN, IBADAN

BUSINESS STUDIES ACHIEVEMENT TEST

CLASS: JSS 2   SUBJECT: BUSINESS STUDIES   TIME: 1HOUR.

Name of School: _____

INSTRUCTIONS: ANSWER ALL QUESTIONS.

CHOOSE THE CORRECT OPTION FROM THE OPTIONS A-D PROVIDED.

1. The followingare components of a ledger EXCEPT   _____

    (a) amount

    (b) particulars

    (c) date

    (d) net profit.

2. A _____ ledger consists of nominal and real accounts.

    (a) general

    (b) personal

    (c) private

    (d) group

3. Typing in small letter is typing in ___case.

    (a) upper

    (b) lower

    (c) any

    (d) little

4. Capital and drawing accounts are categorised under _____ ledger

    (a) personal

    (b) private

    (c) general

    (d) public

5. The full meaning of C.O.D is _____
   (a) Cash on Delivery
   (b) Capital on Delivery
   (c) Cheque on Delivery
   (d) Cost on Delivery

6. ------- paragraphs are mostly used when typing poems, verses and plays.
   (a) Blocked
   (b) Indented
   (c) Hanging
   (d) Hedging

7. A manuscript is aor an _____
   (a) secretary note
   (b) machine note
   (c) handwritten note
(d) typescript note

8. The simplest form of ledger has a total of _____ columns.
   (a) 2
 (b) 4
(c) 6
(d) 8

9. Which of the followingentered into the fourth column of the ledger account?
(a) Amount
(b) Date
(c) Folio
(d) Particulars

10. In typewriting or computer, how many times will you bounce space bar after typing
a full stop?
(a) one
(b) two
(c) four
(d) three

11. The setting up or creating a new page on the computer system is _____
(a) page set-up

(b) alignment

(c) keyboarding

(d) document

12. _____ is the placement of text and graphics so that they are parallel on the page.

(a) Microsoft word

(b) Keyboarding

(c) Alignment

(d) Page Set-up.

13. The golden rule of double entry book-keeping is that ____

    (a) "every debtor must have a creditor"

    (b) "for every debit entry there must be a corresponding credit entry and vice versa"

    (c) "for every entry, there must be a single creditor and vice versa."

    (d) "for every item, there must be a double entry"

14. The sign (NP) means_____

    (a) New Paragraph

    (b) New Page

    (c) New Pencil

    (d) New Begin

15. _____ line spaces are given between blocked paragraph when typed in single line spacing.

(a) Single

(b) Treble

(c) Four

(d) double

16. A purchases ledger contains the account of _____

    (a) Creditors

(b) debtors

(c) debentures

(d) investors

17. When using indented paragraph, ____ spaces are left to the right of the second and subsequent lines.

    (a) one

    (b) two

(c) five or six

(d) three

18. Which of the following transactions involves contra entry?

 (a) Bank debited charges

 (b) Cash paid into bank

 (c) Withdrew cash from bank for private use

 (d) Bank interest and charges

19. In printer's correction signs, what is the full meaning of ref?

 (a) reference

(b) referred

(c) represent

(d) reverence.

20. _____ is the act of manipulating your finger on a machine specifically designed to form typewritten words.

(a) Computer

(b) Keyboarding

 (c) Typewriting

(d) Manuscript

21. The left side of a ledger is called the ____side.

(a) credit

(b) folio

(c) debit

(d) giving

22. To align right, you press _____

 (a) Ctrl + L

 (b) Ctrl + R

 (c) Ctrl + C

 (d) Ctrl+ E

23. In printer's correction signs, the symbol / / means_____

(a) new paragraph

(b) delete the word

(c) close up the space

(d) type in reverse order

24. Alignment that can be vertically and horizontally aligned is known as _____aligned.

(a) Edge

(b) optical

(c) centered

 (d) vertical

25. F.O.B. means _____

(a) Fire on Board

(b) Freeman on Board

(c) Free off Board

(d) Free on Board

26. When the long edge of the paper is at the top of the page, it means ____ option.

(a) landscape

(b) page set-up

(c) portrait

(d) alignment

27. The key that is used to take the cursor to a new line is the_____ key.

(a) delete

(b) enter

(c) insert

(d) shift

28. Keyboarding skills is important in business because it _____

(a) increases the production of materials with pen

(b) is good for the production of personal handwritten documents only.

(c) is used for musical purpose only

(d) takes short time to produce handwritten materials for personal and professional uses.

29. Which of the following marks on the text indicates a new paragraph?

(a) ____

(b) L.C

(c) [

(d) U.C

30. Ojo purchased goods worth N500,000 on credit from Fola. The transaction affects _____ accounts.

(a) purchases and Ojo

(b) purchases and Fola

(c) sales and purchases

(d) credit and purchases

31. A transaction affecting both the cash and bank columns of the cashbook is known as_____entry.

    (a) contra

    (b) control

    (c) credit

    (d) double

32. The sign U.C means _____

    (a) Under Capital

    (b) New Capital

    (c) Lower Capital

    (d) Upper Capital

33. "Continue with the preceding one" is represented with which of these signs in the manuscript?

    (a) L.C

(b) U.C

(c) Run-on

(d) Trs

34. Printer's correction sign is also known as _____

    (a) Printer's marks and signs

    (b) Proof reader's marks

    (c) Proof reader's signs

    (d) Proof reader's marks and signs

35. A sales ledger contains the account of _____ledger.

    (a) debtors

    (b) debentures

    (c) creditors

    (d) investors

36. When typing a document in hanging paragraph, the second and subsequent lines are typed _____ spaces to the right of the first line.

    (a) Five

(b) four

(c) two or three

(d) six

Dear Sir,

Thank you for your letter dated 2nd March, 2017. It is my pleasure to write you this letter.

My regards to your family, friends and all members of your community and church.

37. The paragraph used in the short letter above is called _____ paragraph.

   (a) Indented

   (b) hanging

   (c) blocked and hanging

   (d) blocked

38. In keyboarding, how many times will you bounce space bar after typing a comma?

   (a) One

   (b) Three

   (c) Four

   (d) Two

39. The full meaning of E & O.E is _____

   (a) Error and Omission Error

   (b) Error Expected and Omission

   (c) Expected and Omission Error

   (d) Expected and Omission Expected.

40. Which of the following is recorded on the folio column of the ledger?

   (a) All credit sales transaction

   (b) Page number of a journal or ledger account

   (c)Amount of money involved.

   (d) Date of entry.

MARKING GUIDE – OBTAINABLE MARKS =40
ANSWERS TO BUSINESS STUDIES ACHIEVEMENT TEST (BSAT)

(1) D	(11) A	(21) C	(31) A
(2) A	(12) C	(22) B	(32) D
(3) B	(13) B	(23) A	(33) C
(4) C	(14) A	(24) C	(34) D
(5) A	(15) D	(25) D	(35) A
(6) C	(16) A	(26) A	(36) C
(7) C	(17) B	(27) B	(37) D
(8) D	(18) C	(28) D	(38) A
(9) A	(19) A	(29) C	(39) D
(10) B	(20) C	(30) B	(40) B

APPENDIX IV

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INSTITUTE OF EDUCATION

INTERNATIONAL CENTRE FOR EDUCATIONAL EVALUATION

UNIVERSITY OF IBADAN

BUSINESS STUDIES SKILLS ACQUISITION SCALE (BSSAS)

</div>

Dear Respondent,

This Skills Acquisition in Business Studies Scale is designed purposely for educational research. It is meant to find out the extent by which students are skillful. Kindly supply the information required in the spaces provided. All information will be strictly used for academic purpose and treated confidentially.

Thanks for your anticipated cooperation.

Instruction: Please tick ( ) the box, applicable to you.

SECTION A: (Demographic Data).

Gender: Male ( ) Female ( )

Class of Students Being Assessed: J.S.S 2

Average Age of Students Being Assessed: 13 ( ) 14 ( ) 15 ( )

Name of School: _____

SECTION B: BUSINESS SKILLS ACQUISITION SCALE (BSAS)

From the following items, tick the most applicable option that best explains the extent to which the students already possess the following business skills.

Items Response: Highly skilled   ---   HS

                  Moderately skilled   ---   MS

                  Not skilled   ---   NS

SN	To what extent are the students skillful in Business Studies in terms of:	HS	MS	NS
a.	**Technique development in keyboarding**			
1	Typing alphabetical sentence drill.			
2	Making use of the enter key correctly.			

3	Creating tables in Microsoft word.			
b.	**Page Set-up**			
4	Producing a document using correct page set-up.			
5	Producing a document with right aligned.			
6	Producing a passage with left aligned.			
7	Producing a passage with justified aligned.			
8	Producing a document with centered aligned.			
c.	**Paragraphing**			
9	Producing a passage in hanging paragraphs,			
10	Producing a passage in indented paragraphs			
11	Producing a passage in blocked paragraphs.			
d.	**Ledger Entries**			
12	Posting items correctly into the credit side of the account.			
13	Entering items correctly into the debit side of the account.			
14	Posting contra entries items correctly into the debit side of the ledger.			
15	Posting contra entries items correctly into the credit side of the ledger.			
e.	**Printers' Correction Marks and Signs**			
16	Rendering abbreviated words in full.			
17	Producing a document from manuscript correctly.			
18	Identifying proof reader's marks and signs.			
19	Producing document with the correct font size.			
20	Arranging information from different "balloons" as used within a document correctly.			

INSTITUTE OF EDUCATION
INTERNATIONAL CENTRE FOR EDUCATIONAL EVALUATION
UNIVERSITY OF IBADAN
BUSINESS STUDIES INTEREST SCALE (BSIS)

Dear Respondent,

    This Business Studies Interest Scale is designed purposely for educational research. It is meant to find out your feelings towards business studies. It is designed purposely for data collection. Kindly supply the information required in the spaces provided. All information will be strictly used for academic purpose and treated confidentially.

    Thanks for your anticipated cooperation.

Instruction: Please tick ( ) the box, applicable to you.

SECTION A: Demographic Data.

Gender: Male ( ) Female ( )

Age: 11-12 years ( ) 13-14 years ( ) 15 years and above ( )

Name of School: _____

SECTION B: Business Studies Interest Items

For the following items, tick the most applicable option that best explains your interest about Business Studies.

Items Response: A = Always, O = Often, R= Rarely

S/N	ITEMS	A	O	R
1.	I listen attentively when preparing accounts in business studies			
2.	I pay keen attention to business studies teacher when			

	teaching.			
3.	I enjoy doing theoretical aspect of business studies			

4.	I listen attentively to keyboarding aspect of business studies.			
5.	I enjoy the objective aspect of business studies.			
6.	I enjoy reading business studies notes and textbooks.			
7.	I enjoy taking active part in discussing about the importance of business skills acquisition			
8.	I stay in class when it is time for business studies lessons.			
9.	I apply business knowledge to solve real live situations.			
10.	I lead group in practical work in business studies.			
11.	I enjoy learning more business studies principles and concepts			
12.	I take active part in any discussion about the importance of business skill acquisition in everyday life.			
13.	I devote free time to study business studies.			
14.	The practical concept in business studies is enjoyable to me.			
15.	I enjoy studying business studies daily			
16.	Business studies is the most interesting subject to me.			
17.	Studying business studies concepts is difficult to me.			
18.	The study of business studies is not interesting to me			
19.	The theoretical aspect of business studies is boring to me.			
20.	I concentrate fully in business studies classes			

INSTITUTE OF EDUCATION

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UNIVERSITY OF IBADAN

BUSINESS STUDIES SELF-EFFICACY SCALE (BSSES)

Dear Respondent,

The researcher is interested in examining students' academic self-efficacy as it does determine students' learning outcomes. Hence, this scale has been designed to assess your academic self-efficacy in Business Studies. Information provided will be used for research purposes only and confidentiality is hereby guaranteed.

I, therefore, plead that you kindly and truthfully as much as possible provide the necessary information to assist in arriving at genuine results from this present study.

Thanks for your anticipated cooperation.

SECTION A: (Demographic Data).

Gender: Male ( )   Female ( )

Age: 11-12 years ( ) 13-14 years (   ) 15 years and above ( )

Name of School: _____

Section B

Instruction: Read carefully each item and indicate the extent to which you agree with it by ticking **X** against the most appropriate box.

VTM   -   Very True of Me

TM   -   True of Me

FTM   -   Fairly True of Me

NTM   -   Not True of Me

S/N		VTM	TM	FTM	NTM
1	Business studies is not difficult for me to pass				
2	I will pass business studies examination if I study well				
3	I have no problem to study for business studies test.				
4	I read business studies textbook with little assistance from my teacher				
5	I will pass business studies examinations because I have good grasp of the subject.				
6	I will pass business studies examination without the assistance of my peers.				
7	I find it very difficult to prepare adequately for business studies examination.				
8	Studying for business studies examinations is not a problem for me				
9	I believe I can pass business studies examination with ease.				
10	I can teach my peer business studies perfectly well.				
11	I easily remember any topic in business studies.				
12	I can top the class in business studies subject even in the midst of competition.				
13	Though some of my mates find business studies assignment difficult, I never do.				
14	I can confidently answer any question on any topic in business studies.				
15	I make use of the library to enrich my knowledge of business studies beyond the classroom interaction.				
16	When I am faced with a seemingly difficult task in business studies I confront it straight.				
17	I write business studies with great confidence.				
18	I am never anxious whenever I am preparing for business studies examinations				
19	I have no problem discussing business studies with friends.				
20	Business studies has made other subjects in school not difficult to me.				

APPENDIX VII

Description of Computer Graphics Instructional Mode Package

Computer graphics is the use of images such as pictures, illustrations, diagrams, charts, tables, maps and similar visual representations in conjunction with written prose for the specific purpose of aiding understanding.The teacher introduces the computer teaching package instructional mode by altering the conventional arrangement as he or she divides the class into groups of five students per group. The purpose of grouping is that the computers may not go round the students individually, and this allows members of each group ignite intellectual interactive spirit among one another.

The teaching package is an instructional package that gives room for questions either from the teacher or the students. The teacher instructs the students to listen attentively to the teacher's order or directive before clicking the button instructed to click. The teaching package consists of five buttons; the start, backward, forward, pause and home buttons. The teacher tells the students that the leader of each group should do the clicking and that they should not click when not told to do so.

The graphics teaching package has the following buttons:

The start button: To get started.

The pause button: To stop temporarily in order to enable the students to answer the questions in the callout.

The forward button: It is clicked in order to continue with the teaching

The backward button: To repeat the teaching of a particular content that needs clarification to the students. The content that seemsnot to be understood by the studentsat the end of each content

The Home button: This is the button that takes one back to the beginning of the instructional package. Also to enable the teacher to explain more, if the students do not understand. At the end of the teaching package, class exercises will be given to the students to interact with themselves, provide answers to the questions collectively before treating the questions individually. She instructs the students to signify by the raise of hands as each student finishes the class exercise.

The teaching package is made up of visual, pictures and written words. It is to be controlled by a group leader of five students in a group at the teacher's instructions.

Step I: The teacher sets up the rules for the computer graphics instructional modes in order to let the students know what is expected of them during the computer graphics and the rules include:

(a)   A group must consist of five students with a computer.

(b)   Each group should identify a group leader with the supervision of the teacher.

(c)   The leader identified by the members of the group should be allowed to have control over them.

(d)   The leader should be the only one to click on the mouse as directed by the teacher either forwarding or back warding button.

(e)   Everybody in the group should be allowed to contribute to the concepts they are to be taught using computer graphics instructional mode.

(f)   On no account should any student insult, laugh, de-mean, humiliate, condemn or evaluate any student in the group on his or her response.

(g)   Every student must be able to do the class activities given at the end of the interaction.

Step II: The teacher assigns the students into groups of five which they should maintain throughout the treatment period and each group on their own with the supervision of the teacher choose their group leader.

Step III: The teacher presents the topic to be taught using computer graphics instructional mode.

Step IV: The teacher allows the students to ask questions on the area they do not understand by instructing the students to click the pause button.

Evaluation: The teacher asks the students questions and gives them class exercises from the computer graphics teaching package to assess their degree of understanding of the topics.

Conclusion: The teacher marks the students' class exercises and corrects the students where and when necessary.

Assignment: The teachergives the students assignment.

Week One

Class: J.S.II

Topic: Techniques Development in Keyboarding

Sub-Topics: (a) How to Create a Table

   (b) The use of line spacing, Spacing between lines and Spacing between paragraphs.

Duration: Double Period (80 Minutes)

Instructional Materials: Computer system

Behavioural Objectives: At the end of the lesson, students should be able to;

i.   demonstrate the use of the insert table function

ii.   demonstrate the use of line space regulator and enter key correctly.

Procedure:

Step 1:   Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode

Step II: The computer teaching package installed introduces the students to how to create a Table

Step III: The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package introduces the use of line spacing to the students.

Step V: The facilitator pauses the teaching package to give room for groups discussions

Step VI: The teaching package explains spacing between lines.

Step VII: The teacher pauses the teaching package to allow for group discussions and as well ask and welcome questions from the students.

Step VIII: The teaching package teaches spacing between paragraphs

Step IX: The teacher pauses the teaching package to give room for questioning and discussion.

Evaluation: The teaching package gives the students class activities to do.

Conclusion: Theteacher goes round to supervise the students. The teacher marks the students' work and does correction with them where necessary.

Assignment: The students copy their assignment from the learning package.

CONTENTS:

Techniques Development in Keyboarding

How to create a Table

The steps are as follows:

1.   Click where you want to insert a table.

2.   On the insert tab, in the tables group, click table, and the click insert table.

3.   Under table size, enter the number of columns and rows as shown below.

4.   Under auto fit behavior, choose options to adjust the table size.

5.   Click ok.

The Use of Line Spacing

In keyboarding, line spacing is the distance between two lines in a Microsoft word document. You can increase or decrease this distance as you desire by following a few simple steps.

Spacing between Lines

1.   Select the line or lines for which for which you want to define spacing.

     Use the enter key on the keyboard.

2.   Click the line spacing button triangle to display a list of options to adjust space between the lines.

You can select any of the options available by simply clicking over it.

Spacing between Paragraphs

1.   Select paragraph or paragraph for which you to define spacing, and click the paragraph dialog box launcher available on home tab.

2.   Click before spinner to increase or decrease space before the selected paragraph. In a similar way, click after spinner to increase or decrease the space after the selected paragraph.

3.   Finally, click ok button to apply the changes.

Class Activities:

Instruction: Use the text below to create 1.5 of line spacing.

A boy once saw his father putting some batteries in the sun. he asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. So, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

ANSWER TO TECHNIQUES DEVELOPMENT IN KEYBOARDING

A boy once saw his father putting some batteries in the sun. he asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. So, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

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Week Two

</div>

Class: J.S.II

Topic: Paragraphing

Sub-Topics: The different methods of paragraphing.

                        The use of different methods of paragraphing.

Duration: Double Period (80 minutes)

Instructional Material: Computer system

Behavioral objectives: At the end of the lesson, students should be able to;

1.   Mention the different methods of paragraphing

2.   Demonstrate the use of different methods of paragraphing.

Procedure:

Step 1: Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode

Step II: The computer teaching package installed introduces to the students the meaning of paragraph.

Step III: The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package introduces the different methods of paragraphing to the students.

Step V: The facilitator pauses the teaching package to give room for groups discussions

andQuestions.

Step VI: The teaching package demonstrates the use of different methods of paragraphing.

Step VII: The teacher pauses the teaching package to allow for group discussions and as well asks and welcomes questions from the students.

Step VIII: The teacher pauses the teaching package to give room for questioning and discussions.

Evaluation: The teaching package gives the students class activities to do.

Conclusion: Theteacher goes round to supervise the student. The teacher marks the students' work and does correction with them where necessary.

Assignment: The students copy their assignment from the learning package.

CONTENTS

Paragraph

A paragraph is a series of sentences that are organized and coherent, and are all related to a single topic. Paragraphing is a method used to separate thought within a written passage. That means within a given information, one paragraph separates a point from another so that ideas are not mixed up or packed together within a context for clarity purpose.

Methods of Paragraphing

1. Blocked paragraph
2. Indented paragraph
3. Hanging paragraph

Blocked Paragraph

This means when all lines of the paragraph start from the beginning of the left margin. It is the easiest paragraphing form which can be used. Double line spacing is used between blocked paragraphs when the work is typed in single-line spacing. When keyboarding, the enter button key should be depressed twice to give the space between paragraphs so that the space will be wider than the ones between lines. Treble line spacing is used between blocked paragraph when the work is typed in double-line spacing.

The format of a blocked paragraph

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX

Indented Paragraph

This is a method of keyboarding information by starting from the 5th or 6th alphabets space towards the right margin. A computer operator during word processing is to strike the space bar five times to start typing on the 6th space into the body part of a document. Subsequent lines of the same paragraph start at the left margin. It is the most common and easiest way of separating point within a document.

The format of an indented paragraph:

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXX

    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXX.

Hanging Paragraph

A hanging paragraph is a style of paragraph indentation in a document in which the first line of the paragraph is start at the left side of the page and the rest of the paragraph's lines are indented two or three spaces slightly to the right. Hanging paragraphs are sometimes used when what is to be typed is complicated and will be better understood more rapidly if it is displayed this way. Hanging paragraphs are mostly used when typing literary works such as poems, verses and plays. It is also used in display works to draw attention to particular points.

Double-line spacing is used between hanging paragraphs typed in either single or double-line spacing.

The format of a hanging paragraph

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Class Activities:

Instruction: Type the following passage using blocked, indented and hanging style of paragraphing.

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. So, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he

asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

ANSWERS TO PARAGRAPHING

Blocked Style Paragraph

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects.

However, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Indented Paragraph

    A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

    A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects.

    However, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Hanging Paragraph

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may
    last longer because they are dull now".
A week later at school the boy was abused by his teacher for not being brilliant. The
    teacher told him that he should go and sharpen his dull brain because he got zero
    in most ofhis subjects. However, when the son got home and judging from what
his father did, the father got home and met his son sitting in the sun, he was

surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as youdid to your batteries.

Week Three

Class: J.S.II

Topic: Page Set Up

Sub-Topics: Opening a New Document and Alignment

Duration: Double Period (80 minutes)

Instructional Materials: Computer System

Behavioral objectives: At the end of the lesson, students should be able to;

i.　　Demonstrate how to set up a new page

ii.　　Choose the correct alignment

iii.　　Produce a document

Procedure:

Step 1:　 Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, trial mode and test mode.

Step II:　The computer teaching package installed introduces the students on how to set up a page.

Step III:The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package describes the four types of paragraph alignment that are available in Microsoft word to the students.

Step V: The facilitator pauses the teaching package to give room for groups discussions andquestions.

Step VI: The teacher clicks on the try mode to allows the students to demonstrate what they have learnt in the view mode by clicking on the try mode.

Evaluation:　 The teacher clicks on the test mode to enable the students to demonstrate what they have tried in the try mode.

Conclusion: The teacher goes round to supervise the students' work. The teacher marks and does correction with the students where necessary.

CONTENTS:

Page set-up

　　This involves setting up or creating a new page on the computer system.

How to set-up a New Page

a.   Click the Microsoft office button

b.   Click new in the drop-down menu

c.   Then click "create". A new page will appear.

Alignment: Alignment is the placement of text and graphics so that they are parallel on the page. It is one of the principles of design that help us create attractive, readable pages.

An alignment is used to:

i.   Create order

ii.   Organize page elements

iii.   Group items and;

iv.   Create visual connections.

Types of Alignment

There are four types of paragraph alignment that are available in Microsoft Word. These are:

(a)   Left alignment

(b)   Centered alignment

(c)   Right alignment

(d)   Justified alignment

Left Alignment

A paragraph text is said to be left aligned if it is aligned with left margin.

Simple Procedure

- Click anywhere on the paragraph you want to align.
- Click align text button available on home tab or simply press Ctrl + L keys

Centered Alignment

A paragraph text is said to be centered align if it is in the center of the left and right margins.

- Click anywhere on the paragraph you want to align.
- Click center button available on Home tab or simply press Ctrl + E keys.

Right Alignment

A paragraph text is said to be right aligned if it is aligned with right margin.

Simple Procedure

- Click anywhere on the paragraph you want to align.

- Click text right button available on Home tab or simply press Ctrl + R keys.

Justify Aligned Text

A paragraph is said to be justified aligned if it is aligned with both left and right margins.

Simple Procedure

- Click anywhere on the paragraph you want to align.
- Click justify button available on Home tab or simply press Ctrl + J keys.

Producing a Document

This means printing a document

Procedure

- Click the Microsoft Office Button.
- Then, click print.

CLASS ACTIVITIES:

Type the passage below and;

(a) **justify the text**

(b) **align right**

(c) **align left**

(d) **align center.**

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as"acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

ANSWERS TO ALIGNMENT

(a) JUSTIFIED TEXT

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as

"acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

(b) ALIGNED RIGHT

Nigeria is far from being alone in the demand for accountability of some sort on the
part of those to whom society has entrusted the education of its youths.
Accountability has been defined as
"acceptance of responsibility for values by those to whom citizens have entrusted"
public service.

Three other terms that are used for accountability include answerability,
responsibility and explication.

(c) ALIGNED LEFT

Nigeria is far from being alone in the demand for accountability of some sort on the
part of those to whom society has entrusted the education of its youths.
Accountability has been defined as
"acceptance of responsibility for values by those to whom citizens have entrusted"
public service.
Three other terms that are used for accountability include answerability,
responsibility and explication.

(d) ALIGNED CENTER

Nigeria is far from being alone in the demand for accountability of some sort on the
part of those to whom society has entrusted the education of its youths.
Accountability has been defined as
"acceptance of responsibility for values by those to whom citizens have entrusted"
public service.
Three other terms that are used for accountability include answerability, responsibility
and explication.

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Week Four

Class: J.S.II

Topic: Printers' Correction Signs

Sub-Topics: Meaning of Printers' Correction Signs and Marks.

Meaning of Manuscript and Uses.

Abbreviations and Full Meanings of Abbreviated Words.

Exercises on Abbreviations and Full Meanings of Abbreviated Words.

Duration: Double Periods (80 Minutes)

Instructional Materials: Computer System

Behavioral objectives: At the end of the interaction students should be able to;

- Read manuscripts correctly and;
- Type manuscripts and render all abbreviation in full correctly.

Procedure:

Step 1: Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode

Step II: The computer teaching package installed introduces the students to the meaning of printers' correction signs and marks.

Step III: The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package gives the students the meaning of a manuscript.

Step V: The facilitator pauses the teaching package to give room for groups discussions andquestions

Step VI: The teacher clicks on the teaching package to explain abbreviations and their full meanings.

Evaluation: The teacher clicks on the test mode to enable the students to demonstrate what they have learnt by typing the exercises given.

Conclusion: The teacher goes round to supervise the students' work. The teacher marks and does correction with the students where necessary.

CONTENTS:

Printers' correction signs are used to give direction to the typist on what to do during keyboarding. Printers' correction signs are also known as proof reader's marks and signs

MANUSCRIPT

A manuscript means handwritten information. Writing over and over again is a difficult task if errors are to be corrected. Therefore, printers' correction signs are used to guide the typist on what to type as well as the arrangement of the information. The typist should read through the whole manuscript and make necessary corrections by arranging information from different "balloons" as used within a document.

They are usually referred to as "balloons" as they are seen in large circles either by the side, within, top or under information within a particular document.

LONGHAND ABBREVIATION

In manuscripts, it is normal for you to come across abbreviated words which you must type in full. Therefore, to understand and read a manuscript, certain words are abbreviated which must be learnt by the typesetters. After learning these signs and abbreviations, the typesetters will be able to read a manuscript easily and type it.

Words that are usually abbreviated include:

	Abbreviation	Words in Full
1	A1	First class
2	A/C	Account
3	amt	amount
4	B/E	Bill of Exchange
5	b4	before
6	bn	been
7	B/S	Balance Sheet
8	cd	could
9	ch	chapter
10	C.I.F	Cost, Insurance and Freight
11	C.O.D	Cash on Delivery
12	coy	company
13	dept.	department
14	E&O.E.	Error and Omission Expected
15	exam	examination
16	exp	expense(s)
17	f	for
18	F.O.B	Free on Board
19	fr	from
20	hv.	have
21	i.e	(id est) that is
22	IOU	I Owe You
23	msg	message
24	necy	necessary
25	O.R.	Owner's Risk
26	p	page
27	pp	pages
28	ppp.	(per procurationem) on behalf of
29	pd	paid
30	pple.	people
31	recd.	received
32	rect.	receipt
33	ref	reference
34	std.	student
35	w	with
36	wd	would
37	wh	why/which
38	wl	will

N.B. Before typing a manuscript, the typesetter should:

(1) Read through the manuscript before keyboarding to acquaint himself or herself with the style of writing special instructions and contents.

(2) Make sure that he or she understands what is written before he starts typing. Usually, manuscripts are typed on quarto-size or A4 paper.

Class Activities:

Exercise 1

INSTRUCTIONS

(a)   Type this passage with 14 font size

(b)   Indent the paragraphs at 5 character spaces.

(c)   Set margin at 15 and 70

(d)   Type in double-line spacing.

(e)   Use only Times New Roman as theme font.

(f)   Omission of words will be penalized.

(g)   Render all abbreviations in full.

Learning is a skill, wh. the std. develops just as a prospective mechanic needs to practise his trade. For this reason, it is necy. for the std to work out a prog. f. his studies to plan his attack on the enemy. It becomes necy. therefore to plan out a prog. so th. the time spent on this important aspect shd. not be regarded as wasted as it is for a general.

It is a gd. idea to provide a std. w. a syllabus so th. he can plan f. himself. Here a progress chart wl. be very helpful in estimating his chances of success in d exam. f. wh. he is preparing. @ d beginning of his course

Answer to Exercise 1

Learning is a skill, which the student develops just as a prospective mechanic needs to practice his trade. For this reason, it is necessary for the students to work out a programme for his studies as is for a general to plan his attack on the enemy. It becomes necessary therefore to plan out a programme so that the time spent on this important aspect should not be regarded as wasted.

It is a good idea to provide a student with a syllabus at the beginning of his course so that he can plan for himself. Here a progress chart will be very helpful in estimating his chances of success in the examination for which he is preparing.

Exercise 2

INSTRUCTIONS

(a)   Type this passage with 14 font size

(b)   Use blocked style.

(c)   Set margin at 15 and 70

(d)   Type in double-line spacing.

(e)   Use only Times New Roman as theme font.

(f)   Omission of words will be penalized.

(g)   Render all abbreviations in full.

People often say, the world is much smaller than it used to be. One reason they say this is th. w. can travel fr. place to place much more quickly th. b4.

B4 railways, cars & aeroplanes were invented, msgs. cd. not be carried very fast. They could be carried only es quickly as a man cd. travel on foot, on horse, on camel, or in a boat. Until postage stamps were invented, only rich people cd. easily send msgs. to places far fr. their homes. But after the and pulsant discovery of steam engines, cars & aeroplanes, msgs. cd. be carried fr. place to place much quicker th. ever b4.

The other msgs. can be sent further & more quickly th. ever b4

Answer to Exercise 2

People often say, the world is much smaller than it used to be. One reason they say this is that, we can travel from place to place much more quickly than before. The other is that messages can be sent further and more quickly than ever before.

Before railways, cars and aeroplanes were invented, messages could not be carried very fast. They could be carried only as quickly as a man could travel on foot, on horse, on camel, or in a boat. Until postage stamps were invented, only rich and puissant people could easily send messages to places far from their homes. But after the discovery of steam engines, cars and aeroplanes, messages could be carried from place to place much quicker than ever.

Week Five

Class: J.S.II

Topic: Printers' Correction Signs

Sub-Topics: Meaning of Printers' Correction Signs and Marks.

Duration: Double Periods (80 Minutes)

Instructional Materials: Computer System

Behavioral objectives: At the end of the interaction students should be able to;

- Read manuscripts correctly,
- Type manuscripts and render all abbreviations in full correctly,
- Identify proof readers signs,
- Type manuscript with proof readers' signs and marks correctly.

Procedure:

Step 1: Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode

Step II: The computer teaching package installed introduces the students to the meaning of printers' correction signs and marks.

Step III: The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package gives the students the meaning of a manuscript.

Step V: The facilitator pauses the teaching package to give room for groups discussions andquestions

Step VI: The teacher clicks on the teaching package to explain abbreviations and their full

meanings.

Evaluation: The teacher clicks on the test mode to enable the students to demonstrate what they have learnt by typing the exercises given.

CONTENTS

Printers' correction signs are used to give direction to the typist on what to do during keyboarding.Printers' correction signs are also known as proof reader's marks and signs.

MANUSCRIPT

A manuscript means handwritten information. Writing over and over again is a difficult task if errors are to be corrected.

Therefore, printers' correction signs are used to guide the typist on what to type as well as the arrangement of the information. The typist should read through the whole manuscript and make necessary corrections by arranging information from different "balloons" as used within a document. They are usually referred to as "balloons" as they are seen in large circles either by the side, within, top or under information within a particular document.

The table below shows a few but important proof reader's signs, the meaning and how they are used.

Sign	Meaning, usage and indication in text
Sp. Caps	Words should be typed in spaced capitals. It shows three lines under the portion to be typed. -----
L.c	Type in small letters. It shows single line underneath the portion to be typed in small letters. ----
u.c	Type in capital letters. It shows two lines underneath the portion to be typed in capital letters. ====
Rom	Change to roman figure. Circle the section to be altered.
Trs	Transpose. This mark between words or letters means change the position of the words or sentences to make sense.
O	Insert a full stop
W.F	Wrong Font, Circle letter or words to be changed.
Stet	Let it stand. Draw dotted lines under section to be typed. -----
N.P	New Paragraph
Run on	No new paragraph. Continue in the same paragraph. Join last paragraph with the next one.
	Delete marked on text
/-/	Insert a hyphen
	Close up. Close or take out space
♯	Insert space (i.e. when words are joined together).
" "	Insert quotation marks.
'	Insert apostrophe
'	Insert a comma.

Class Activities:

Exercise 1
INSTRUCTIONS
(a)   Type this passage with 12 font size
(b)   Indent the paragraphs at 5 character spaces.
(c)   Set margins at 15 and 70
(d)   Type in double-line spacing.
(e)   Use only Times New Roman as theme font.
(f)   Omission of words will be penalized
(g)   Render all abbreviations in full.

lc   The last step in filing is placing
stet   the records in d files. Mails ~~were~~ are usually stored
uc   in files folders. to file mails, locate the file
ℓℓ   drawers c. the right caption. Then find d
ℓℓ stet folders in wh. the mails are to be ~~sorted~~ by
trs   reading d caption on d side of the drawer file
^of   left d folder & rest it on the side ^ the
            drawer be4 placing the paper in
NP   it. [Make sure th. the caption on d
⊙   paper to be filled ^ Carefully put the paper
ℋ   in the folders.

250

Answer to Exercise 1

<u>Filing.</u>

The last step in filing is placing the records in the files. Mails are usually stored in files folders. To file mails, locate the file drawer with the right caption. Then find the folder in which the mails are to be stored by reading the caption on the side of the file drawer, lift the folder and rest it on the side of the drawer before placing the paper in it.

Make sure that the caption on the folder agrees with the caption on the paper to be filled. Carefully put the paper in the folder.

Exercise 2

INSTRUCTIONS

(a)   Type this passage with 12 font size

(b)   Indent the paragraphs at 5 character spaces.

(c)   Set margins at 15 and 70

(d)   Type in double-line spacing.

(e)   Use only Times New Roman as theme font.

(f)   Omission of words will be penalized

(g)   Render all abbreviations in full.

My journey to the village — Centre in caps.

MP [My friends have never visited this part of the world b4 ʌ I can remember d pleasure & pride I had in listening to their ~~expressions~~ visions of joy & I felt as if I were responsible personally, for creating this beautiful scenery. [When we ~~come~~ came to some village houses ʌ, my friends would request me to stop f. them to take some pictures. i think they took more ʌ than two hundred pictures on that journey.

When @ last we arrived @ my home town, I cd not get them to come into d houses because they were excited by the lovely village dwellings they were about to enter. it was all fun.

MP · stet trs MP stet ʌ, uc ʌ than run on ℋ close up uc

Answer to Exercise 2

MY JOURNEY TO THE VILLAGE

My friends have never visited this part of the world before. I can remember the pleasure and pride I had in listening to their expressions of joy and I felt as if I were personally responsible for creating this beautiful scenery.

When we came to some village houses, my friends would request me to stop for them to take some pictures. I think they took more than two hundred pictures on that journey. When at last we arrived at my home town, I could not get them to come into the house because they were excited by the lovely village dwellings they were about to enter into. It was all fun.

Week Six

Class: J.S.2

Topic: Ledger Entries

Sub-Topics: Meaning of Ledger, Items on the ledger and How to record cash received /payment.

Duration: Double Period (80 Minutes)

Instructional Materials: Computer System

Behavioral objectives: At the end of the lesson, studentsshould be able to;

i.   define ledgers;

ii.   list the items on the ledger,

iii.   record transactions inside ledger,

Simple Procedure

Step 1: Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode

Step II: The computer learning package installed introduces the students to the meaning of ledger.

Step III: The learning package lists the items on the ledger

Step IV: The learning package describes the items on the ledger.

Step V: The learning package teaches the students on how to record transactions inside the ledger.

Step VI: The teacher pauses the graphics learning package to give room for group discussions and questions.

Step VII: The learning package gives the students illustrations on the ledger.

Step VIII: Theteacher pauses the learning package to allow the students to discuss and ask questions on the area they do not understand.

Evaluation: The learning package gives the students exercises to do.

Conclusion: The teacher goes round to supervise the students and assist them where necessary. The teacher marks the class activities and does correction with the students, if there is need.

Assignment: The learning package gives the students assignment to do.

CONTENTS:

LEDGER

Ledger is the principal book of account in which all business transactions are opened and recorded. The ledger is the main book of account into which all detailed transactions recorded in the books of original entries are transferred and appeared in a classified and summarized form as accounts. The ledger is used for the double entry book-keeping.

A ledger account is a page in the ledger that is devoted to transactions of a particular type. Ledger account are easily prepared and understood by using a "T" format. This format involves the division of the ledger vertically into two equal halves of eight columns by a straight line. The first four columns on the left hand side is called the debit side and is represented with letters "Dr", while the other four columns on the right side is the credit side and is represented by "Cr". The Dr side is the side that receives value and the Cr sides is the side that gives value.

FORMAT OF A LEDGER

Dr

Cr

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount

Items on the Ledger

Date: This column shows the day, month and year that transactions take place.

Particulars: This column is used to record description of transaction that take place.

Folio: This is used as reference in which the page number of the subsidiary book or other account is recorded. The folios are numbered consecutively and make reference to be easier and faster.

Amount: This column is used to record the amount spent or received.

How to Record Cash Receipt and Cash Payment the Entries in the Ledger

Cash Received: The account which receives value or cash is debited. The transaction is recorded on the debit side of the account.

Cash Payment: The account which gives value or pays cash is credited. This means that the transactions are recorded on the credit side of the account.

Rules for Debiting and Crediting

(i) The account which "receives" is debited with the value that comes into the account.

(ii) The account which "gives" is credited with the value that goes out of the account.

Application of Double Entry System in the Ledger

When you are faced with any transaction, ask yourself three questions.

(1) Which accounts are affected? Give them names.

(2) What types of account are they? Classify them e.g. real, personal or nominal.

(3) Which one is to be debited and which is to be credited?

The account giving value is credited and the account receiving value is debited.

For proper understanding of the ledger entries, the students must commit to memory the principle which states that:

"CREDIT THE GIVER"

"DEBIT THE RECEIVER

NOTE: Before recording a transaction, determine first if the account is receiving value or giving out value.

Example 1

May 4, sold goods on cash ₦60,000.00

Solution:

To enter this cash sale, the sales account will be credited for giving value while the cash account will be debited for receiving value. Cash sales bring money into cash account as shown below.

Dr   **Sales Account**   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				4/3/16	Cash		N̶ 60,000.00

DR   **Cash Account**   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
4/3/16	Sales		N̶ 60,000.00				

Summary

The ledger is the main book of account. Items on the ledger include date, particulars, folio and amount. The receiver of value should be debited and the giver of value should be credited. Accounts which have been classified as assets usually show a debit balance e.g. cash, Bank, Purchase furniture. Accounts which have been classified as liabilities usually show a credit balance e.g. capital, creditor, loan taken.

Revenues and gains usually show a credit balance e.g. sales, service revenues, interest on income or interest on revenue and gain on sales of assets.

Expenses and losses usually show a debit balance e.g. salaries paid, wages, rent, supplies and interest.

Evaluation: She asks them the following questions to assess their level of understanding of the topics.

1. Define a ledger.
2. Summarize the principle of double entry in one sentence
3. Write up the following transactions in the books of Olamiposi Olamigoke.

    Jan.2   Started business with N300,000 cash

Jan. 4   Purchased furniture by N24,000

Jan.20   Sold goods for cash N56,000

Conclusion: The teacher collects their notebooks for marking and does correction with the students in class. She asks them to copy the correction into their business studies notebooks and submit notebooks for marking.

SOLUTION:

(1)   Ledger is the principal book of account in which all business transactions are opened and recorded.

(2)   For every debit entry there must be a corresponding credit entry and for every credit entry there must be a corresponding debit entry.

Jan. 2   Started business with N300,000 cash

    Effect on: Capital Account

                 Cash Account

   Account: Debit – cash account with N300,000

             Credit – capital account with N300,000

Cash Account

Dr   Cr

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
Jan. 2	Capital		N̶ 300,000				

Dr Capital Account   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				Jan. 5	Cash		N̶ 300,000

Jan. 4   Purchased furniture by N24,000 cash

Effect on: Furniture Account

 Cash Account

Account: Debit – Furniture account with N24,000

Credit – cash account with N24,000

Dr   Furniture Account   Cr

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
Jan. 4	Cash		N 24,000				

Dr Cash Account   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				Jan. 4	Furniture		N 300,000

Jan.20   Sold goods for cash N56,000

Effect on: Sales Account

Cash Account

Account: Debit – Cash account with N56,000

           Credit – Sales account with N56,000

Dr   **Cash Account**   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
Jan. 20	Sales		N 56,000				

Sales Account

Dr   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				Jan. 20	Cash		N 56,000

Assignment: The students copy their assignment.

Write up the following transactions of Paul Oluwanifemi

July 5:   Started business with N800,000 in the bank

July 19: Paid rent by cash N200,000

July 24: Bought motor van N35,000 paying by cheque.

Week Seven

Class: J.S.2

Topic: Contra Entries in the Ledger Entries

Sub-Topics: Meaning of Contra Entries and How to Record Contra Entries in the Ledger

Duration: Double Period (80 Minutes)

Instructional Materials: Computer System

Behavioral objectives: At the end of the lesson, learners should be able to;

i.   define a contra entry and;

ii.   make contra entries in the ledger correctly.

Simple Procedure

Step 1: Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode.

Step II: The computer teaching package installed introduces the students to the meaning of a contra entry

Step III: The teacher pauses the teaching package to ask questions and welcome questions from the students.

Step IV: The teaching package describes the two instances for a contra entry.

Step V: The teaching package teaches the students on how to record contra entries transactions inside the ledger.

Step VI: Theteacher pauses the teaching package to allow for groups discussion and questions

Step VII: The teaching packagegives the students illustrations on contra entries in the ledger.

Step VIII: Theteacher pauses theteaching package to allow the learners to ask questions

on the area they do not understand.

Evaluation: The teacher pauses the teaching package to give the students exercises to do.

Conclusion: The teacher goes round to supervise the student and correct them where necessary.

Assignment: The teacher clicks the teaching package to give the students assignment to do.

CONTENTS:

Contra Entries in the Ledger

A contra-entry is a situation whereby the whole or part of cash is paid into the bank or cash in the bank is withdrawn for office use. This has to do with the transactions that affect both cash and bank account at the same time with the same amount. Contra entry is usually represented with letter "C" in the folio column of the ledger and cash book.

Payment from office cash into bank.

This occurs when part or whole of the office cash in the till is being deposited into the bank account.

Example I

June 10, 2016, paid cash of N20,000.00 into the bank.

To enter this cash payment, the bank account will be debited for receiving value, while the cash account will be credited for giving out value.

Effect: Debit Bank Account N20,000

Credit Cash Account N20,000

Dr			Bank Account			Cr	
Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
10/6/16	Cash	C	N̶ 20,000.00				

DrCash Account   Cr

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				10/6/16	Bank	C	₦ 20,000.00

Withdrawal from Bank for Office Use

This situation usually occurs in the office when there is no sufficient cash to meet payments in the near future or insufficient cash in hand. Thus, the cashier or accounts officer in such instances will draw a cheque and cash will be received.

Example II

September 16, 2016: Withdrew N45,000 from the bank for office use.

In this transaction we are to Debit cash account with the value received and credit bank account with the value given.

i.e.   Debit Cash Account with N45,000

         Credit Bank Account with N45,000

Dr   Cash Account   Cr

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
16/9/16	Bank	C	₦ 45,000.00				

Dr   Bank Account   Cr

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				16/9/16	Cash	C	₦ 45,000

Class Activities

You are required to write up the accounts for the following transactions:

Nov. 6: Withdrew N80,000 cash from the bank for business use.

Nov. 8: Took N20,000 of the cash and paid into the bank.

Nov. 20: Bought machinery N200,000 paying by cheque.

Nov. 26: Goods were returned to us by Kayode N105,000.

Conclusion: The teacher collects their notebooks for marking and does correction with the students in class. She asks them to copy the correction into their business studies notebooks and submit notebooks for marking.

SOLUTION

Nov. 6: Withdrew N80,000 cash from the bank for business use.

In this transaction, we are to debit cash account with the value received and credit bank account with the value given.

  i.e.   Debit Cash Account with N320,000

         Credit Bank Account with N320,000

Dr   **Cash Account**   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
6/11/16	Bank	C	N 320,000.00				

Dr   **Bank Account**   **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				6/11/16	Cash	C	N 320,000

Nov. 8: Took out of the cash till N20,000 and put into the bank.

Effect on: BankAccount

Cash Account

Account: Debit – Bank account with N20,000

Credit – cash account with N20,000

Dr			Bank Account				Cr
Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
Jan.16	Cash	C	N̶ 20,000				

Dr			Cash Account			Cr	
Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				Jan.16	Bank	C	N̶ 20,000

Nov. 20: Bought machinery N200,000 paying by cheque

Effect on: MachineryAccount

Bank Account

Account: Debit – Machinery account with N200,000

Credit –   Bank account with N200,000

Dr			**Machinery Account**				**Cr**
Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
Nov.20	Bank		N̶ 200,000				

Dr			**Bank Account**				**Cr**
Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				Nov. 20	Bank		N̶ 20,000

Nov. 26: Goods were returned to us by Kayode N̶105,000

Effect on: KayodeAccount

Returns Outwards Account

Account: Debit – Kayode account with N̶105,000

Credit –   Returns outwards account with N̶105,000

Dr **Kayode Account** **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
Nov.26	Returns outwards		₦ 105,000				

Dr **Returns outwards Account** **Cr**

Date	Particulars	Folio	Amount	Date	Particulars	Folio	Amount
				Nov. 26	Kayode		₦ 105,000

Assignment: The students copy their assignment.

Write up the following transactions of Paul Oluwanifemi

April 5   Drew cash 320,000 from bank

April 19   Paid 20,000 cash into the bank

April 20   Bought motor van N46,000 paying by cash.

April 27: Took cash 50,000 till and paid into the bank.

APPENDIX VIII

Description of Computer Animation Instructional Mode Package

The teacher introduces the computer animation instructional strategy to the students by altering the conventional setting arrangement as he or she divides the class into group of five or six students per group.

The purpose of grouping is that the computer may not go round students individually and also to encourage team spirit thereby, allowing members of each group to ignite intellectual interactive spirit among one another.

The teacher asks the students to pay keen attention as he or she controls the instructional learning package. She tells them to be attentive, she clicks pause to allow the students to provide answers to the callout questions in the instructional package. The package has four buttons, the forward, backward, pause and start buttons.

The animation package has three modes; the view mode, the try mode and the test mode.

The view mode: This mode allows the students to see and listen to the teaching package in order to learn how to do it by themselves.

The trial mode: This mode is for students to put into practice what they have viewed, seen and learnt in the view mode. This will enable the students to assess themselves to see if actually they can do what they have been taught in view mode.

The test mode: This mode is prepared for students to do the class exercises given to them by the teaching package and this will be marked by the teacher. This will actually give them the true of each students and it will enable the teacher to assess the degree of understanding of the students. It also helps the teacher as well to assess himself or herself if the performance objectives stated at the beginning of the lesson have been achieved or not.

At the end of the teaching package, class exercises will be given to the students to interact with themselves, provide answers to the questions collectively before treating the questions individually. She instructs the students to signify by the raise of hands as each students finishes the class exercise.

Computer animation instructional package is an instructional package that enables students to pay attention, arouse their interests and build up team spirit among the students.

The instructional package consists of audio (sound), pictures and visual. It is controlled centrally by the teacher. It consists of three buttons; the start button, pause button and home button.

The start button: To get started.

The pause button: To stop in order for the students to answer the questions in the callout.

The Home button: This is the button that takes one back to the beginning of the instructional package.

The essence of using animation is to help students to understand and remember information. Computer animation instructional mode is a way of developing a motion picture using a series of drawings, graphics and photographs of objects.

Step I:

The teacher sets up the rules for the computer animation instructional modes in order to let the students know what is expected of them during the computer animation and the rules include:

(a)   A group must consist of five students with a computer.

(b)   Each group should identify a group leader.

(c)   The leader identified by the members of the group should be allowed to have control over them.

(d)   Everybody in the group should be allowed to contribute to the concepts they are to be taught using computer animation instructional mode.

(e)   On no account should any student insult, laugh, de-mean, humiliate, condemn or evaluate any student in the group on his or her response.

(f)   Every student must be able to do the class activities given at the end of the interaction.

Step II: The teacher assigns the students into groups of five which they should maintain throughout the treatment period and each group on their own with the supervision of the teacher choose their group leader.

Step III: The teacher presents the topic to be taught using computer animation instructional mode.

Step IV: The teacher allows the students to ask questions on the area they do not understand by clicking the pause button.

Evaluation: The teacher asks the students questions and gives them class exercises to assess their degree of understanding of the topics.

Conclusion: The teacher marks the students' class exercises and corrects the students where and when necessary.

Assignment: The teacher gives the students assignment from the computer teaching package.

Week One

Class: J.S.II

Topic: Techniques Development in Keyboarding

Sub-Topics: How to Create a table

The use of line spacing, Spacing between lines and Spacing between paragraphs.

Duration: Double Period (80 Minutes)

Instructional Materials: Computer system

Behavioral objectives: At the end of the lesson, students should be able to;

    i. demonstrate the use of the insert table function,

    ii. demonstrate the use of line space regulator and enter key correctly.

Procedure:

Step 1: Teacher introduces the students to the computer system and the animation instructional package by telling them the meaning of the view mode and pause mode.

Step II: The computer teaching package installed introduces the students to how to create a table

Step III: The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package introduces the use of line spacing to the students.

Step V: The facilitator pauses the teaching package to give room for groups discussions

Step VI: The teaching package explains spacing between lines.

Step VII: The teacher pauses the teaching package to allow for group discussions and as well asks and welcomes questions from the students.

Step VIII: The teaching package teaches spacing between paragraphs.

Step IX: The teacher pauses the teaching package to give room for questioning and discussion.

Evaluation: The teacher clicks the try mode and ask the students to practice the use of insert table and the use of line space regulator and enter key.

Conclusion: Theteacher goes round to supervise the students. The teacher marks the students' work and does correction with them where necessary.

Assignment: The students copy their assignment from the learning package.

CONTENTS: SAME AS IN COMPUTER GRAPHICS INSTRUCTIONAL MODE

Week Two

Class: J.S.II

Topic: Paragraphing

Sub-Topics: The different methods of paragraphing.

The use of different methods of paragraphing

Duration: Double Period (80 Minutes)

Instructional Material: Computer system

Behavioral objectives: At the end of the lesson, students should be able to;

1. Mention the different methods of paragraphing

2. Demonstrate the use of different methods of paragraphing.

Procedure:

Step 1:Teacher introduces the students to the computer system and the animation instructional package by telling them the meaning of the view mode and pause mode.

Step II: The computer teaching package installed introduces to the students the meaning of a paragraph.

Step III:The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package introduces the different methods of paragraphing to the students.

Step V: The facilitator pauses the teaching package to give room for groups discussionsandquestions.

Step VI: The teaching package demonstrates the use of different methods of paragraphing.

Step VII:The teacher pauses the teaching package to allow for group discussions and as well asks and welcomes questions from the students.

Step VIII:The teacher pauses the teaching package to give room for questioning and discussions.

Step IX: The teacher clicks on the try mode to allows the students to demonstrate what they have learnt in the view mode.

Evaluation: The teacher clicks on the test mode to enable the students to demonstrate blocked, indented and hanging paragraphing they have tried in the try mode.

Conclusion: Theteacher goes round to supervise the student. The teacher marks the students' work and does correction with them where necessary.

Assignment: The students copy their assignment from the learning package.

CONTENTS:

Paragraph

A paragraph is a series of sentences that are organized and coherent, and are all related to a single topic. Paragraphing is a method used to separate thought within a written passage. That means within a given information, one paragraph separates a point from another so that ideas are not mixed up or packed together within a context for clarity purpose.

Methods of Paragraphing

1. Blocked paragraph
2. Indented paragraph
3. Hanging paragraph

Blocked Paragraph

This means when all lines of the paragraph start from the beginning of the left margin. It is the easiest paragraphing form which can be used. Double line spacing is used between blocked paragraphs when the work is typed in single-line spacing. When keyboarding, the enter button key should be depressed twice to give the space between paragraphs so that the space will be wider than the ones between lines. Treble line spacing is used between blocked paragraph when the work is typed in double-line spacing.

The format of a blocked paragraph

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Indented Paragraph

This is a method of keyboarding information by starting from the 5th or 6th alphabets space towards the right margin. A computer operator during word processing is to strike the space bar five times to start typing on the 6th space into the body part of a document. Subsequent lines of the same paragraph start at the left margin. It is the most common and easiest way of separating point within a document.

The format of an indented paragraph:

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Hanging Paragraph

A hanging paragraph is a style of paragraph indentation in a document in which the first line of the paragraph is start at the left side of the page and the rest of the paragraph's lines are indented two or three spaces slightly to the right. Hanging paragraphs are sometimes used when what is to be typed is complicated and will be better understood more rapidly if it is displayed this way. Hanging paragraphs are mostly used when typing literary works such as poems, verses and plays. It is also used in display works to draw attention to particular points.Double-line spacing is used between hanging paragraphs typed in either single or double-line spacing.

The format of a hanging paragraph

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXX.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 XXXXXXXXXXXXXX.

Class Activities: The teacher gives the students a passage to type, using blocked, indented and hanging style of paragraphing.

Instruction: Type the following passage using blocked, indented and hanging style of paragraphing in your notebooks.

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. So, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Answers to Paragraphing

Blocked Style Paragraph

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects.

However, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Indented Style Paragraph

  A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

    A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects.

    However, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Hanging Style Paragraph

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may

last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. However, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he askedfor the reason but the boy replied saying, "my teacher said I have a dull brain", so Iwant to sharpen it as you did to your batteries.

Week Three

Class: J.S.II

Topic: Page Set-Up

Sub-Topics: Opening a New Document and Alignment

Duration: Double Period (80 Minutes)

Behavioral objectives: At the end of the lesson, students should be able to;

i.   Demonstrate how to set up a new page

ii.   Choose the correct alignment

iii.   Produce a document

Procedure:

Step 1:Teacher introduces the students to the computer system and the animation instructional package by telling them the meaning of the view mode and pause mode.

Step II: The computer teaching package installed introduces the students on how to set up a page.

Step III:The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package describes the four types of paragraph alignment that are available in Microsoft word to the students.

Step V: The facilitator pauses the teaching package to give room for groups discussions andquestions

Step VI: The teacher clicks on the try mode to allows the students to demonstrate what they have learnt in the view mode.

Evaluation: The teacher clicks on the test mode to enable the students to demonstrate what they have tried in the trial mode.

Conclusion: The teacher goes round to supervise the students' work. The teacher mark and does correction with the students where necessary.

CONTENTS:

Page set-up

This involves setting up or creating a new page on the computer system.

How to set-up a New Page

a. Click the Microsoft office button

b. Click new in the drop-down menu

c. Then click "create". A new page will appear.

Alignment: Alignment is the placement of text and graphics so that they are parallel on the page. It is one of the principles of design that help us create attractive, readable pages.

   An alignment is used to:

i.   Create order

ii.   Organize page elements

iii. Group items and

iv. Create visual connections.

Types of Alignment

There are four types of paragraph alignment that are available in Microsoft Word. These are:

(a) Left alignment

   (b) Centered alignment

   (c) Right alignment

   (d) Justified alignment

Left Alignment

   A paragraph text is said to be left aligned if it is aligned with left margin.

Simple Procedure

•   Click anywhere on the paragraph you want to align.

•   Click align text button available on home tab or simply press Ctrl + L keys

Centered Alignment

   A paragraph text is said to be centered align if it is in the center of the left and right margins.

•   Click anywhere on the paragraph you want to align.

•   Click center button available on Home tab or simply press Ctrl + E key

Right Alignment

   A paragraph text is said to be right aligned if it is aligned with right margin.

Simple Procedure

- Click anywhere on the paragraph you want to align.
- Click text right button available on Home tab or simply press Ctrl + R keys.

Justify Aligned Text

A paragraph is said to be justified aligned if it is aligned with both left and right margins.

Simple Procedure

- Click anywhere on the paragraph you want to align.
- Click justify button available on Home tab or simply press Ctrl + J keys.

Producing a Document

This means printing a document

Procedure

- Click the Microsoft Office Button.
- Then, click print.

Class Activities:

Type the passage below and;

(a)   justify the text

(b)   align right

(c)   align left

(d)   align center.

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as "acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

Answers to Alignment

(a) JUSTIFIED TEXT

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths.

Accountability has been defined as "acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

(b) ALIGNED RIGHT

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as "acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

(c) ALIGNED LEFT

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as "acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

(d) ALIGNED CENTER

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as "acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

Week Four

Class: J.S.II

Topic: Printers' Correction Signs

Sub-Topics: Meaning of Printers' Correction Signs and Marks.

Meaning of Manuscript and Uses.

Abbreviations and Full Meanings of Abbreviated Words.

Exercises on Abbreviations and Full Meanings of Abbreviated Words.

Duration: Double Periods (80 Minutes)

Instructional Materials: Computer System

Behavioral objectives: At the end of the interaction students should be able to;

- Read manuscripts correctly and;

- Type manuscripts and render all abbreviations in full correctly.

Procedure:

Step 1: Teacher introduces the students to the computer system and the graphics instructionalpackage by telling them the meaning of the view mode, try mode and test mode

Step II: The computer teaching package installed introduces the students to the meaning of printers' correction signs and marks

Step III: The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package gives the students the meaning of a manuscript.

Step V: The facilitator pauses the teaching package to give room for groups discussions andquestions

Step VI:The teacher clicks on the teaching package to explain abbreviations and their full meanings.

Step VII: The teacher clicks on pause to allow the students to ask questions on the area they do not understand.

Evaluation: The teacher clicks on the test mode to enable the students to practice the given exercises.

Conclusion: The teacher goes round to supervise the students' work. The teacher marks and does correction with the students where necessary.

CONTENTS:

Printer correction signs are used to give direction to the typist on what to do during keyboarding.

Printers correction signs are also known as proof reader's marks and signs

MANUSCRIPT

A manuscript means handwritten information. Writing over and over again is a difficult task if errors are to be corrected.

Therefore, printers' correction signs are used to guide the typist on what to type as well as the arrangement of the information. The typist should read through the whole

manuscript and make necessary corrections by arranging information from different "balloons" as used within a document. They are usually referred to as "balloons" as they are seen in large circles either by the side, within, top or under information within a particular document.

LONGHAND ABBREVIATION

In manuscripts, it is normal for you to come across abbreviated words which you must type in full. Therefore, to understand and read a manuscript, certain words are abbreviated which must be learnt by the typesetters. After learning these signs and abbreviations, the typesetters will be able to read a manuscript easily and type it.

Words that are usually abbreviated include:

	Abbreviation	Words in Full
1	A1	First class
2	A/C	Account
3	amt	amount
4	B/E	Bill of Exchange
5	b4	before
6	bn	been
7	B/S	Balance Sheet
8	cd	could
9	ch	chapter
10	C.I.F	Cost, Insurance and Freight
11	C.O.D	Cash on Delivery
12	coy.	company
13	dept.	department
14	E&O.E.	Error and Omission Expected
15	exam	examination
16	exp.	expenses
17	f.	for
18	F.O.B	Free on Board
19	fr	from
20	hv.	have
21	i.e	(id est) that is
22	IOU	I Owe You
23	msg	message
24	necy	necessary
25	O.R.	Owner's Risk
26	p	page
27	pp	pages
28	ppp.	(per procurationem) on behalf of
29	pd	paid
30	pple.	people
31	recd.	received
32	rect.	receipt
33	ref	reference
34	std.	student
35	w	with
36	wd	would
37	wh	why/which

38	wl	will	

N.B. Before typing a manuscript, the typesetter should:

(1) Read through the manuscript before keyboarding to acquaint himself with the style of writing special instructions and contents.

(2) Make sure that he understands what is written before he starts typing. Usually, manuscriptsare typed on quarto-size or A4 paper.

Class Activities:

INSTRUCTIONS

(a)   Type this passage with 14 font size

(b)   Indent the paragraphs at 5 character spaces.

(c)   Set margins at 15 and 70

(d)   Type in double-line spacing.

(e)   Use only Times New Roman as theme font.

(f)   Omission of words will be penalized

(g)   Render all abbreviations in full.

Learning is a skill, wh. the std. develops just as a prospective mechanic needs to practise his trade. For this reason, it is necy for the std to work out a prog. f. his studies to plan his attack on the enemy. It becames necy. therefore to plan out a prog. so th. the time spent on this important aspect shd. not be regarded as wasted

as it is for a general

It is a gd. idea to provide a std. w. a syllabus so th. he can plan f. himself. Here a progress chart wl. be very helpful in estimating his chances of success in d exam. f. wh. he is preparing.

@ d beginning of his course

Answer to Exercise 1

Learning is a skill, which the student develops just as a prospective mechanic needs to practice his trade. For this reason, it is necessary for the students to work out a programme for his studies as is for a general to plan his attack on the enemy. It becomes necessary therefore to plan out a programme so that the time spent on this important aspect should not be regarded as wasted.

It is a good idea to provide a student with a syllabus at the beginning of his course so that he can plan for himself. Here a progress chart will be very helpful in estimating his chances of success in the examination for which he is preparing.

INSTRUCTIONS

(a)   Type this passage with 14 font size

(b)   Use blocked style.

(c)   Set margins at 15 and 70

(d)   Type in double-line spacing.

(e)   Use only Times New Roman as theme font.

(f)   Omission of words will be penalized

(g)   Render all abbreviations in full.

Pple often say, d world is much smaller
than it used to be. One reason they say this
is th. w. can travel fr. place to place much
more quickly th. bef.

B4 railways, cars & aeroplanes were invented,
msgs. cd. not be carried very fast. They could
be carried only es quickly as a man cd.
travel on foot, on horse, on carmel, or in a
boat. Until postage stamps were invited, only
rich pple cd. easily send msgs. to places
far fr. their homes. But after the   and
discovery of steam engines, cars & aeroplanes,   pulsant
msgs. cd. be carried fr. place to place much
quicker th. ever bef.

The other
msgs. can be
sent further & more
quickly th. ever bf

Answer to Exercise 2

People often say, the world is much smaller than it used to be. One reason they say this is that, we can travel from place to place much more quickly than before. The other is that messages can be sent further and more quickly than ever before.

Before railways, cars and aeroplanes were invented, messages could not be carried very fast. They could be carried only as quickly as a man could travel on foot, on horse, on camel, or in a boat. Until postage stamps were invented, only rich and puissant people could easily send messages to places far from their homes. But after the discovery of steam engines, cars and aeroplanes, messages could be carried from place to place much quicker than ever.

Week Five

Class: J.S.II

Topic: Printers' Correction Signs.

Sub-Topics: Meaning of Printers' Correction Signs and Marks.

Duration: Double Periods (80 Minutes)

Instructional Materials: Computer System.

Behavioral objectives: At the end of the interaction students should be able to;

- Read manuscripts correctly,
- Type manuscripts and render all abbreviations in full correctly,
- Identify proof readers signs,
- Type manuscript with proof readers' signs and marks correctly.

Procedure:

Step 1: Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode

Step II: The computer teaching package installed introduces the students to the meaning of printers' correction signs and marks.

Step III: The teacher pauses the teaching package to ask questions from the students.

Step IV: The teaching package gives the students the meaning of a manuscript.

Step V: The facilitator pauses the teaching package to give room for groups discussions andquestions

Step VI: The teacher clicks on the animation teaching package to explain printers' signs,

meanings, usage and indication in text.

Step VII: The teacher pauses the animation teaching package to enable the students to answer questions from the callout.

Evaluation: The teacher clicks on the test mode to enable the students to practice what they have learnt by typing the exercises given correctly.

CONTENTS: SAME AS IN COMPUTER GRAPHICS INSTRUCTIONAL MODE

Class Activities:

INSTRUCTIONS

(a)   Type this passage with 12 font size

(b)   Indent the paragraphs at 5 character spaces.

(c)   Set margins at 15 and 70

(d)   Type in double-line spacing.

(e)   Use only Times New Roman as theme font.

(f)   Omission of words will be penalized

(g)   Render all abbreviations in full.

Handwritten proofreading passage:

Filing — underscore

lc   The last Step in filing is placing

stet   the records in d files. Mails were usually stored

uc   in files folders. to file mails, locate the file

ll   drawers c. the right caption. Then find d

ll stet folders in wh. the mails ere to be stored by

trs   reading d caption on d side of the drawer/file

∧of   left d folder & rest it on the side/the

       drawer be4 placing the paper in

NP   it. [Make sure th. the caption on d

⊙   paper to be filled∧ Carefully put the paper

ll   in the folders.

Answer to Exercise 1

<u>Filing.</u>

The last step in filing is placing the records in the files. Mails are usually stored in files folders. To file mails, locate the file drawer with the right caption. Then find the folder in which the mails are to be stored by reading the caption on the side of the file drawer, lift the folder and rest it on the side of the drawer before placing the paper in it.

Make sure that the caption on the folder agrees with the caption on the paper to be filled. Carefully put the paper in the folder.

INSTRUCTIONS

(a)   Type this passage with 12 font size

(b)   Indent the paragraphs at 5 character spaces.

(c)   Set margins at 15 and 70

(d)   Type in double-line spacing.

(e)   Use only Times New Roman as theme font.

(f)   Omission of words will be penalized

(g)   Render all abbreviations in full.

Centre in caps.

My journey to the village

MP ⊙ [My friends have never visited this part of the world by/ I can remember d pleasure & pride stet I had in listening to their ~~expressions~~ visions of joy & I trs felt as if I were (responsible) personally, for MP creating this beautiful scenery. [When we stet come ^, came to some village houses ∧ my friends would request me to stop f. them to take some uc pictures. i think they took more ∧ two hundred ∧than pictures on that journey.]

run on ℋ [When @ last we arrived @ my home town, I cd not get them to come into d houses because they were excited by the lovely close up village dwellings they were about to enter. uc it was all fun.

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Answer to Exercise 2

MY JOURNEY TO THE VILLAGE

My friends have never visited this part of the world before. I can remember the pleasure and pride I had in listening to their expressions of joy and I felt as if were personally responsible for creating this beautiful scenery.

When we came to some village houses, my friends would request me to stop for them to take some pictures. I think they took more than two hundred pictures on that journey. When at last we arrived at my home town, I could not get them to come into the house because they were excited by the lovely village dwellings they were about to enter into. It was all fun.

Week Six

Class: J.S.II

Topic: Ledger Entries

Sub-Topics: Meaning of Ledger, Items on the ledger and How to record cash received /payment.

Duration: Double Period (80 minutes)

Behavioral objectives: At the end of the lesson, learners should be able to;

i. define ledgers;

ii. list the items on the ledger,

iii. record transactions inside ledger.

Simple Procedure

Step 1: Teacher introduces the students to the computer system and the animation instructional package by telling them the meaning of the view mode and pause mode.

Step II: The computer teaching package installed introduces the students to the meaning of ledger.

Step III: The teaching package lists the items on the to the students.

Step IV: The teaching package describes the items on the ledger.

Step V: The teaching package teaches the students on how to record transactions inside the ledger.

Step VI: Theteaching package describes contra entries to the students.

Step VII: The teaching package gives the students illustrations on the ledger.

Step VIII: Theteaching package allows the students to pause and ask questions on the area they do not understand.

Step IX: The teaching package gives the students exercises to do in class.

Step X: The teaching package gives the students assignment to do.

Evaluation: The teacher pauses the teaching package to give the students exercises to do.

Conclusion: The teacher goes round to supervise the students and correct them where necessary.

Assignment: The teacher clicks the teaching package to give the students assignment to do.

CONTENTS:

SAME AS IN GRAPHICS INSTRUCTIONAL GUIDE

Week Seven

Class: J.S.2

Topic: Contra Entries in the Ledger Entries

Sub-Topics: Meaning of Contra Entries and How to Record Contra Entries in the Ledger

Duration: Double Period (80 minutes)

Instructional Materials: Computer System

Behavioral objectives: At the end of the lesson, students should be able to;

i. define a contra entry and;

ii. make contra entries in the ledger correctly.

Simple Procedure

Step 1: Teacher introduces the students to the computer system and the graphics instructional package by telling them the meaning of the view mode, try mode and test mode

Step II: The computer teaching package installed introduces the students to the meaning of a contra entry

Step III: The teacher pauses the teaching package to ask questions and welcome questions from the students.

Step IV: The teaching package describes the two instances for a contra entry.

Step V: The teaching package teaches the students on how to record contra entries transactions inside the ledger.

Step VI: Theteacher pauses the teaching package to allow for groups discussion and questions

Step VII: The teaching package gives the students illustrations on contra entries in the ledger.

Step VIII: Theteacher pauses theteaching package to allow the students to ask questions on the area they do not understand.

Evaluation: The teacher pauses the teaching package to give the students exercises to do.

Conclusion: The teacher goes round to supervise the student and correct them where necessary.

Assignment: The teacher clicks the teaching package to give the students assignment to do.

CONTENTS:

SAME AS IN COMPUTER GRAPHICS INSTRUCTIONAL GUIDE.

APPENDIX IX

CONVENTIONAL METHOD TEACHER'S INSTRUCTIONAL GUIDE

Students in the control group would be treated with the conventional classroom methods. They will not use any teaching package. The trained teachers in this group will use conventional teaching method prepared in form of notes of lesson to maintain the conventional classroom environment.

Steps to be involved in conventional teaching method are:

Step I: Teacher asks questions on the previous lesson to establish understanding and create bases for the new topic.

Step II: She identifies the missing gaps and provides further explanations.

Step III: She introduces and develops the topic for the day and writes on the board as well. Note writing accompanies the teaching.

Evaluation: Teacher asks questions on the topic taught for the day to assess their degree of understanding of the topic. She gives them class exercises.

Conclusion: she asks the students to submit their notebooks for marking. She marks the students' notebooks and does corrections with the students.

Assignment: Teacher gives the students assignment to be submitted at a stipulated date and time.

Week One

Class: J.S.II

Topic: Techniques Development in Keyboarding

Sub-Topics: How to Create a table

The use of line spacing, Spacing between lines and Spacing between paragraphs.

Duration: Double Period (80 Minutes)

Instructional Materials: To be determined by the teacher.

Behavioral objectives: At the end of the lesson, learners should be able to;

i.   demonstrate the use of the insert table function

ii.   demonstrate the use of line space regulator and enter key correctly.

Procedure:

Step 1: Teacher describes to the students how to create a table

Step II: Teacher also demonstrates the use of line spacing to the students. She tells them that a line of a 40 leaves notebook represents a single line spacing and that half

of the 2 A exercise book or 40 leaves notebook represents 0.5line spacing. Also, each of the lines in a notebook represents one double line spacing or two single-line spacing.

Step III: Teacher welcomes questions from the students

Step IV: Teacher writes a paragraph on the chalkboard draws some horizontal lines and use the lines to demonstrate the different types of line spacing on the chalkboard using a   horizontal line to represent one single line spacing.

Evaluation: Teacher gives the students class activities to do.

Conclusion: Teacher corrects the students where necessary.

CONTENTS:

Techniques Development in Keyboarding.

How to Create a Table

The steps are as follows:

i.   Click where you want to insert a table.

ii.   On the insert tab, in the tables group, click Table, and the click insert table

iii. Under table size, enter the number of columns and rows as shown below.

iv. Under Auto fit behavior, choose options to adjust the table size.

 v. Click ok.

The Use of Line Spacing

In keyboarding, line spacing is the distance between two lines in a Microsoft word document. You can increase or decrease this distance as you desire by following a few simple steps.

Spacing between Lines

1. Select the line or lines for which for which you want to define spacing.

Use the enter key on the keyboard.

2. Click the line spacing button triangle to display a list of options to adjust space between the lines. You can select any of the options available by simply clicking over it.

Spacing between Paragraphs

1. Select paragraph or paragraph for which to define spacing, and click the paragraph dialog box launcher available on home tab.

2. Click before spinner to increase or decrease space before the selected paragraph.

In a similar way, click after spinner to increase or decrease the space after the selected

paragraph. Finally, click ok button to apply the changes.

Class Activities:

Instruction: Use the text below to create 1.5 of line spacing in your Business Studies notebooks.

A boy once saw his father putting some batteries in the sun. he asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. So, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

ANSWER TO TECHNIQUES DEVELOPMENT IN KEYBOARDING

A boy once saw his father putting some batteries in the sun. he asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. So, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Week Two

Class: J.S.II

Topic: Paragraphing

Sub-Topics: The different methods of paragraphing.

The use of different methods of paragraphing.

Duration: Double Period (80 minutes)

Instructional Material: To be determined by the teacher

Behavioral Objectives: At the end of the lesson, learners should be able to;

i. Mention the different methods of paragraphing

ii. Demonstrate the use of different methods of paragraphing.

Procedure:

Step 1: Teacher explains the meaning of a paragraph to the students

Step II: Teacher describes the different methods of paragraphing to the students.

Step III: Teacher discusses the use of the different methods of paragraphing.

Step IV: Teacher allows the students to ask questions on the area they do not understand.

Evaluation: Teacher give the students some exercises to write out in their notebooks using blocked, indented and hanging paragraphs.

Conclusion: Teacher marks the students' notebooks and gives them notes to copy into theirnotebooks.

Assignment: Teacher gives the students assignment to do and asks them to submit the next day for marking.

CONTENTS:

Paragraph

A paragraph is a series of sentences that are organized and coherent, and are all related to a single topic. Paragraphing is a method used to separate thought within a written passage. That means within a given information, one paragraph separates a point from another so that ideas are not mixed up or packed together within a context for clarity purpose.

Methods of Paragraphing

1   Blocked paragraph

2   Indented paragraph

3   Hanging paragraph

Blocked Paragraph

This means when all lines of the paragraph start from the beginning of the left margin. It is the easiest paragraphing form which can be used. Double line spacing is used between blocked paragraphs when the work is typed in single-line spacing. When keyboarding, the enter button key should be depressed twice to give the space between paragraphs so that the space will be wider than the ones between lines. Treble line spacing is used between blocked paragraph when the work is typed in double-line spacing.

The format of a blocked paragraph

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXX

Indented Paragraph

This is a method of keyboarding information by starting from the 5th or 6th alphabets space towards the right margin. A computer operator during word processing is to strike the space bar five times to start typing on the 6th space into the body part of a document. Subsequent lines of the same paragraph start at the left margin. It is the most common and easiest way of separating point within a document.

The format of an indented paragraph:

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX

  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXX

Hanging Paragraph

A hanging paragraph is a style of paragraph indentation in a document in which the first line of the paragraph is start at the left side of the page and the rest of the paragraph's lines are indented two or three spaces slightly to the right. Hanging paragraphs are sometimes used when what is to be typed is complicated and will be better understood more rapidly if it is displayed this way. Hanging paragraphs are mostly used when typing literary works such as poems, verses and plays. It is also used in display works to draw attention to particular points.

Double-line spacing is used between hanging paragraphs typed in either single or double-line pacing.

The format of a hanging paragraph

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   XX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Class Activities: The teacher gives the students a passage to write in their notebooks, using blocked, indented and hanging style of paragraphing.

Instruction: Write the following passage using blocked, indented and hanging style of paragraphing in your notebooks.

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects. So, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Answers to Paragraphing
Blocked Style Paragraph

A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects.

However, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Indented Paragraph

      A boy once saw his father putting some batteries in the sun. He asked his father what he was doing. The father then replied, "I want them to charge so that they may last longer because they are dull now".

      A week later at school the boy was abused by his teacher for not being brilliant. The teacher told him that he should go and sharpen his dull brain because he got zero in most of his subjects.

      However, when the son got home and judging from what his father did, the father got home and met his son sitting in the sun, he was surprised, so he asked for the reason but the boy replied saying, "my teacher said I have a dull brain", so I want to sharpen it as you did to your batteries.

Hanging Paragraph.

A boy once saw his father putting some batteries in the sun. He asked his father he was

doing. The father then replied, "I want them to charge so that they may last longer
    because they are dull now".
A week later at school the boy was abused by his teacher for not being brilliant. The
 teacher told him that he should go and sharpen his dull brain because he got zero in
most of his subjects. However, when the son got home and judging from what his
father did, the father got home and met his son sitting in the sun, he was surprised,
so he asked for the reason but the boy replied saying, "my teacher said I have a dull
    brain", so I want to sharpen it as you did to your batteries.

Week Three

Class: J.S.II

Topic: Page Set-Up

Sub-Topics: Opening a New Document, Alignment

Duration: Double Period (80 minutes)

Instructional Materials: To be determined by the teacher.

Behavioral objectives: At the end of the lesson, learners should be able to;

i. Demonstrate how to set up a new page

ii. Choose the correct alignment

iii. Produce a document

Procedure:

Step 1: Teacher explains page set up to the students.

Step II: Teacher describes to the students on how to set up a page by writing on the chalkboard.

Step III: Teacher describes the four types of paragraph alignment that are available in Microsoft word to the students by

Step IV: Teacher writes some sentences on the chalkboard to illustrate the four types of paragraph alignment.

Step IV: Teacher allows the students to ask questions on the topic she has just taught them and gives them notes to copy into their notebooks.

Evaluation: Teacher writes some sentences on the chalkboard and asks the students to re-write them in their notebooks indicating the four types of paragraph alignment as class exercises to assess their degree of understanding of the topic.

Conclusion: Teacher marks the students' notebooks.

Assignment: Teacher gives the students assignment to do.

CONTENTS:

Page set-up

This involves setting up or creating a new page on the computer system.

How to set-up a New Page

a. Click the Microsoft office button

b. Click new in the drop-down menu

c. Then click "create". A new page will appear.

Alignment: Alignment is the placement of text and graphics so that they are parallel on the page. It is one of the principles of design that help us create attractive, readable pages.

An alignment is used to:

i. Create order

ii. Organise page elements

iii. Group items and

iv. Create visual connections.

Types of Alignment

There are four types of paragraph alignment that are available in Microsoft Word. These are;

(a) Left alignment

(b) Centered alignment

(c) Right alignment

(d) Justified alignment

Left Alignment

A paragraph text is said to be left aligned if it is aligned with left margin.

Simple Procedure

- Click anywhere on the paragraph you want to align.

- Click align text button available on home tab or simply press Ctrl + L keys

Centered Alignment

A paragraph text is said to be centered align if it is in the center of the left and right margins.

- Click anywhere on the paragraph you want to align.

- Click center button available on Home tab or simply press Ctrl + E keys.

Right Alignment

A paragraph text is said to be right aligned if it is aligned with right margin.

Simple Procedure

- Click anywhere on the paragraph you want to align.

- Click text right button available on Home tab or simply press Ctrl + R keys.

Justify Aligned Text

A paragraph is said to be justified aligned if it is aligned with both left and right margins.

Simple Procedure

- Click anywhere on the paragraph you want to align.

- Click justify button available on Home tab or simply press Ctrl + J keys.

Producing a Document

This means printing a document.

Procedure

- Click the Microsoft Office Button.
- Then, click print.

Class Activities:

Instruction: Re-write the passage below in your business studies notebooks and;

(a) justify the text;

(b) align right;

(c) align left;

(d) align center.

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as "acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

Answer to Alignment.

(a) JUSTIFIED TEXT

Nigeria is far from being alone in the demand for accountability of some sort on the part of those to whom society has entrusted the education of its youths. Accountability has been defined as "acceptance of responsibility for values by those to whom citizens have entrusted" public service.

Three other terms that are used for accountability include answerability, responsibility and explication.

(b) ALIGNED RIGHT

Nigeria is far from being alone in the demand for accountability of some sort on the
part of those to whom society has entrusted the education of its youths.
Accountability has been defined as "acceptance of responsibility for values by those
to whom citizens have entrusted" public service.
Three other terms that are used for accountability include answerability,
responsibility and explication.

(c) ALIGNED LEFT

Nigeria is far from being alone in the demand for accountability of some sort on the
part of those to whom society has entrusted the education of its youths.
Accountability has been defined as "acceptance of responsibility for values by those
to whom citizens have entrusted" public service.
Three other terms that are used for accountability include answerability, responsibility
and explication.

(d) ALIGNED CENTER

Nigeria is far from being alone in the demand for accountability of some sort on the
part of those to whom society has entrusted the education of its youths.
Accountability has been defined as "acceptance of responsibility for values by those
to whom citizens have entrusted" public service.
Three other terms that are used for accountability include answerability, responsibility
and explication.

Week Four

Class: J.S.II

Topic: Printers' Correction Signs.

Sub-Topics: Meaning of Printers' Correction Signs and Marks.

Meaning of Manuscript and Uses

Abbreviations and Full Meanings of Abbreviated Words

Duration: Double Period (80 minutes)

Instructional Materials:

Behavioral objectives: At the end of the lesson learners should be able to;

- read manuscripts correctly,

-type manuscripts and render all abbreviations in full correctly.

Procedure:

Step I: The teacher introduces the students to the meaning of printers' correction signs and marks

Step II: Teacher explains to the students the meaning of longhand abbreviations

Step III: She gives them the list of abbreviated words and their meanings.

Step IV: The teacher asks questions from the students.

Step IV: The gives the students the meaning of a manuscript and the uses.

Step V: The teacher welcomes questions from the students to assess their degree of understanding of the topics.

Evaluation: The teacher gives the students some manuscripts to re-write in their notebooks by rendering all abbreviations in full.

Conclusion: The teacher goes round to supervise the students' work. The teacher marks and does correction with the students where necessary.

CONTENTS: SAME AS IN GRAPHICS INSTRUCTIONAL GUIDE

EXERCISE 1

INSTRUCTIONS

(a) Re-write this passage in your notebooks.

(b) Indent the paragraphs at 5 character spaces.

(c) Write in double-line spacing.

(d) Omission of words will be penalized.

(e) Render all abbreviations in full.

Learning is a skill, wh. the std. develops just as a prospective mechanic needs to practise his trade. For this reason, it is necy. for the std. to work out a prog. f. his studies to plan his attack on the enemy. It becomes necy. therefore to plan out a prog. so th. the time spent on this important aspect shd. not be regarded as wasted as it is for a general

It is a gd. idea to provide a std. w. a syllabus so th. he can plan f. himself. Here a progress chart wl. be very helpful in estimating his chances of success in d exam. f. wh. he is preparing.

@ d beginning of his course

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Answer to Exercise 1

Learning is a skill, which the student develops just as a prospective mechanic needs to practice his trade. For this reason, it is necessary for the students to work out a programme for his studies as is for a general to plan his attack on the enemy. It becomes necessary therefore to plan out a programme so that the time spent on this important aspect should not be regarded as wasted.

It is a good idea to provide a student with a syllabus at the beginning of his course so that he can plan for himself. Here a progress chart will be very helpful in estimating his chances of success in the examination for which he is preparing.

EXERCISE 2:

INSTRUCTIONS

(a) Re-write this passage in your notebooks.

(b) Use blocked style.

(c) Write in double-line spacing.

(d) Omission of words will be penalized.

(e) Render all abbreviations in full.

People often say, d world is much smaller than it used to be. One reason they say this is th. w. can travel fr. place to place much more quietly th. b4.

B4 railways, cars & aeroplanes were invented, msgs. cd. not be carried very fast. They could be carried only es quickly as a man cd. travel on foot, on horse, on carmel, or in a boat. Until postage stamps were invented, only rich pple cd. easily send msgs. to places far fr. their homes. But after the *and pulsant* discovery of steam engines, cars & aeroplanes, msgs. cd. be carried fr. place to place much quicker th. ever b4.

The other msgs. can be sent further & more quickly th. ever b4

Answer to Exercise 2

People often say, the world is much smaller than it used to be. One reason they say this is that, we can travel from place to place much more quickly than before. The other is that messages can be sent further and more quickly than ever before.

Before railways, cars and aeroplanes were invented, messages could not be carried very fast. They could be carried only as quickly as a man could travel on foot, on horse, on camel, or in a boat. Until postage stamps were invented, only rich and puissant people could easily send messages to places far from their homes. But after the discovery of steam engines, cars and aeroplanes, messages could be carried from place to place much quicker than ever before.

Week Five

Class: J.S.II

Topic: Printers' Correction Signs

Sub-Topics: Meaning of Printers' Correction Signs and Marks.

Exercises on Printers' Correction Signs and Marks.

Duration: Double Periods (80 minutes)

Instructional Materials: To be determined by the teacher

Behavioral objectives: At the end of the interaction learners should be able to;

- read manuscripts correctly,
- type manuscripts and render all abbreviations in full correctly,
- identify proof readers' signs and;
- type manuscript with proof readers' signs and marks correctly.

Procedure:

Step I: The teacher introduces the students to the meaning of printers' correction signs and marks

Step II: Teacher explains the topic to the students.

Step III: She gives them the list of table of printers' correction signs and marks their meanings and usage.

Step IV: The teacher asks questions from the students.

Step IV: The gives the students the meaning of a manuscript and the uses.

Step V: The teacher welcomes questions from the students to assess their degree of understanding of the topics.

Evaluation: The teacher gives the students some manuscripts to re-write in their notebooks by rendering all abbreviations in full and giving the full meaning of printer' correction and signs.

Conclusion: The teacher goes round to supervise the students' work. The teacher marks and does correction with the students where necessary.

CONTENTS: SAME AS IN GRAPHICS INSTRUCTIONAL GUIDE.

EXERCISE 1

INSTRUCTIONS

(a) Re-write this passage in your notebooks.

(b) Indent the paragraphs at 5 character spaces.

(c) Write in double-line spacing.

(d) Omission of words will be penalized.

(e) Render all abbreviations in full.

Filing ——— underscore

lc   The last step in filing is placing
stet   the records in d files. Mails ~~were~~ are usually stored
uc   in files folders. to file mails, locate the file
ol   drawers c. the right caption. Then find d
ol stet folders in wh. the mails are to be ~~stored~~ sorted by
trs   reading d caption on d side of the drawer/file
∧of   left d folder & rest it on the side/the
        drawer be 4 placing the paper in
NP   it. [Make sure th. the caption on d
⊙   paper to be filled∧ Carefully put the paper
ol   in the folders.

Answer to Exercise 1

<u>Filing.</u>

The last step in filing is placing the records in the files. Mails are usually stored in files folders. To file mails, locate the file drawer with the right caption. Then find the folder in which the mails are to be stored by reading the caption on the side of the file drawer, lift the folder and rest it on the side of the drawer before placing the paper in it.

Make sure that the caption on the folder agrees with the caption on the paper to be filled. Carefully put the paper in the folder.

EXERCISE 2

INSTRUCTIONS

(a) Re-write this passage in your notebooks.

(b) Indent the paragraphs at 5 character spaces.

(c) Write in double-line spacing.

(d) Omission of words will be penalized.

(e) Render all abbreviations in full.

Centre in Caps.

My journey to the village

MP [My friends have never visited this part of the world b4 ʌ I can remember d pleasure & pride I had in listening to their ~~expressions~~ visions of joy & I felt as if I were (responsible) personally; for creating this beautiful scenery. [When we ~~come~~ came to some village houses ʌ my friends would request me to ~~stop~~ f. them to take some pictures. i think they took more ʌ two hundred pictures on that journey.]

[When @ last we arrived @ my home town, I cd not get them to come into d houses because they were excited by the lovely village dwellings they were about to enter. it was all fun.

stet
trs
MP
stet ʌ,
uc
ʌthan
run on
close up
uc

Answer to Exercise 2

<p align="center">MY JOURNEY TO THE VILLAGE</p>

My friends have never visited this part of the world before. I can remember the pleasure and pride I had in listening to their expressions of joy and I felt as if I were personally responsible for creating this beautiful scenery.

When we came to some village houses, my friends would request me to stop for them to take some pictures. I think they took more than two hundred pictures on that journey. When at las we arrived at my home town, I could not get them to come into the house because they were excited by the lovely village dwellings they were about to enter into. It was all fun.

<p align="center">Week Six</p>

Class: J.S.2

Topic: Ledger Entries

Sub-Topics: Meaning of Ledger, Items on the ledger and Preparation of Ledger.

Duration: Double Period (80 minutes)

Behavioral objectives: At the end of the lesson, learners should be able to;

    i.   define ledgers;

    ii.   list the items on the ledger,

    iii.   record transactions inside ledger.

Instructional Aids: Real object of ledger books.

Previous knowledge: Students have been taught petty cashbook and how to enter transactions in the petty cashbook.

Presentation:

Step I: The teacher asks the students questions based on the assignment given to them in the previous lesson.

Step II: The teacher explains ledger to the students.

Step III: The teacher lists the items of ledger entries.

Step IV: The teacher discusses with the learners the contents of the ledger with the students.

Step V: The teacher explains importance of each of the items to the students.

Step VI: The teacher guides the learners on how to enter correctly on a ledger with examples.

Step VII: The teacher gives a question on ledger and does the posting with the students on the chalkboard.

Step VIII: The teacher allows the students to ask questions on the area they do not understand.

Evaluation: The teacher gives students class exercises to do and goes round to assist them where necessary.

Conclusion: The teacher collects the students' notes and marks and does correction with the students on the chalkboard if there is any need.

Assignment: The teacher gives them some exercises to do on ledger and asks them to submit the next day for marking.

CONTENTS: SAME AS IN GRAPHICS INSTRUCTIONAL MODE.

Week Seven

Class: J.S.2

Topic: Contra Entries in the Ledger Entries

Sub-Topics: Meaning of Contra Entries and How to Record Contra Entries in the Ledger

Duration: Double Period (80 minutes)

Instructional Materials: Ledger books and calculators.

Behavioral objectives: At the end of the lesson, students should be able to;

i. define a contra entry and;

ii. make contra entries in the ledger correctly.

Simple Procedure:

Step 1: Teacher introduces the students to the topic by asking them questions on their previous knowledge

Step II: Teacher explains contra entries to the students.

Step III: Teacher describes the two instances for a contra entry.

Step IV: The teacher explains to the students on how to record contra entries transactions inside the ledger.

Step V: Teacher allows the students to ask questions.

Step VI: Teachergives the students illustrations on contra entries in the ledger.

Step VII: Teacher allows the students to ask questions on the area they do not understand.

Evaluation: Teacher gives the students exercises to do.

Conclusion: The teacher goes round to supervise the students' work. Teacher collects the students' notebooks for marking and does correction with them on the chalkboard.

Assignment: Teacher gives the students assignment to do.

CONTENTS: SAME AS IN COMPUTER GRAPHICS INSTRUCTIONAL MODE.