SUITABILITY OF COMPUTER-BASED TEST IN THE USE OF ENGLISH EXAMINATIONS IN FEDERAL UNIVERSITIES IN SOUTH EAST NIGERIA

BY

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PG/M.ED/16/81060

DEPARTMENT OF ARTS EDUCATION

FACULTY OF EDUCATION

UNIVERSITY OF NIGERIA, NSUKKA

OCTOBER, 2019

TITLE PAGE

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A MASTERS THESIS SUBMITTED TO THE DEPARTMENT OF ARTS EDUCATION, FACULTY OF EDUCATION, UNIVERSITY OF NIGERIA, NSUKKA, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF EDUCATION (M.ED), IN LANGUAGE EDUCATION (ENGLISH)

SUPERVISOR: DR. C. I. EGBE

October, 2019

APPROVAL PAGE

This project has been approved for the Department of Arts Education,

University of Nigeria, Nsukka.

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This is to certify that **AGBO, PHILOMINA AKUDO**, a postgraduate student in the Department of Arts Education with registration number PG/M.ED/16/81060 has satisfactorily completed the requirements for the award of the degree of Master of Education in Language Education (English). The project work is original and has not been submitted in part or full for any other diploma or degree of this or any other university.

_____	_____
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DEDICATION

This work is dedicated to my amiable husband, Mr.George Chibuike Agbo and my lovely children Miss Kayla Oluebubechukwu Agbo and Master Kyrian Kasiemobi Agbo.

ACKNOWLEDGEMENTS

I am deeply grateful to my Lord and saviour Jesus Christ for endowing me with divine wisdom, healthy body and sound mind all through the period of this research.

I also remain eternally thankful to some special individuals who allowed God to use them to help me accomplish this work. In this regard, I wish to first of all appreciate my wonderful supervisor Dr. C.I. Egbe. I am deeply grateful for the high level of kindness and patience which he used to guide me through this work. Despite always having loads of work to attend to, he always read my work with an alarming speed and made excellent constructive criticisms which had all helped greatly to make the work come up to this point.

My unreserved appreciation also goes to Dr. J.U. Akabogu, Dr. C.S. Ugwuanyi, Dr. C. I. Chielo, Dr. E.O. Ukoha, and Dr. F. U. Ugwuoke for painstakingly validating the instruments used in collecting data for this work. I also wish to appreciate Prof, F. A. Okwo, Dr. C.I. Ibenegbu, Dr. G.T. Onwuka, Dr. D. U. Asogwa and Dr. A. C. Uloh-Bethels for their scholarly suggestions and guidance from the inception of this work to this stage.

In a special way, I wish to thank the staff and students of Michael Okpara University, Umudike; Nnamdi Azikiwe University, Awka and University of Nigeria, Nsukka for making the process of data collection of this study seamless. I cannot forget to thank my diligent assistants namely: Benny E.; S. C. Offor, M. P. Aduke, U. R. Okechukwu, I.R Ugwu, and L. N. Madu, Their dedication to duty and utmost cooperation contributed greatly to the success of this work.

Lastly, I sincerely appreciate my dear husband, Mr G. C. Agbo for always propelling me to reach for the stars; my children- Kayla and Kyrian for being my constant reminders of the need to excel; my father, Mr T. O. Ogbuishi for planting and nurturing in me the spirit of

excellence; my mother, Mrs G. U. Ogbuishi for minding my home front without a single grudge anytime I needed her to do so during this work; my siblings, for constantly encouraging me to give this work my all; my dear friends, Dr. Q. O. Ibenegbu, H. O. Muojekwu, R. U. Okechukwu, and A. U. Okereke, for always being there for me throughout the period of this work. May the good Lord bless and repay you all.

Agbo, Philomina Akudo
July, 2019

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ABSTRACT

This study was carried out to determine the suitability of Computer-Based Test for the Use of English Examinations. This was done in order to bring to limelight the forms of support and considerations needed for the continued use of Computer-Based Tests. Other variables pertinent to the use of Computer-Based Test such as students' perception, technical-skill and infrastructural challenges were also studied. The study was conducted using descriptive survey research design and was carried out in federal universities in South East Nigeria. Six research questions and five null hypotheses guided the study. The area of the study was South East Nigeria. The population of the study was 33, 263 and a sample of 1,312 was drawn from this population. This sample was made up of 1200 second year undergraduate students, 38 Use of English lecturers and 74 ICT staff who were drawn from the entire population using multi-stage sampling technique. Two instruments namely Questionnaire on Suitability of Computer-Based Test for Use of English Examinations (QSCBTUEE) and two Focus Group Discussion Schedules (FGDS) were developed by the researcher and validated by five experts for the purpose of collecting data for the study. The QSCBTUEE was administered on a group of 30 respondents at the University of Ilorin for the purpose of determining the reliability of the instrument. The internal consistency of the instrument was determined using Cronbach's Alpha and it yielded 0.86, 0.81, 0.84, 0.93, 0.81 and 0.75 for the six clusters of the instrument. Out of the 1,312 instruments administered, 1,288 were filled and returned, signalling 98% return rate. The research questions were answered using mean scores, while the hypotheses were tested using Independent Sample T-test and Analysis of Variance (ANOVA) at 0.05 level of significance. The results showed that the Use of English Computer-Based Test is suitable for testing grammar and reading comprehension but is not suitable for testing oral English and writing skills. However, while there was a significant difference in the mean responses of lecturers and students on the suitability of computer-based test for testing oral English and writing skill, there was no significant difference in the mean responses of lecturers and students on the suitability of computer-based test for testing grammar and reading comprehension. The results further revealed that students have positive perception about the Use of English Computer-Based Test. It was also found that there were a number of infrastructural and technical-skill challenges experienced during the Use of English Computer-Based Test. From the findings, it was concluded that the study has put forward research-based evidence to show that the Use of English Computer-Based Test is not suitable for testing some important skills taught in the course and is also faced with challenges, implying that, the continued use of CBT without making proper interventions and adjustments, will be detrimental to the achievement of the assessment objectives of the Use of English programme. Hence, it was recommended that universities that make use of CBT should ensure that their lecturers get proper training on how to set Use of English CBT questions and that their ICT staff also get proper training on how to develop and manage appropriate CBT software for the course. They should also make provisions for more infrastructures such as examination halls and computers so as to ensure seamless examinations.

CHAPTER ONE

INTRODUCTION

Background of the Study

One of the key tools used by human beings to fulfill their day to day societal responsibilities is language. The major language used and understood by millions of people in the world today is the English language (Crutschlow, 2018). Hence, for most countries in the world, English is regarded as the language of international/intercultural communication, international trade, international adaptation and information and communications technology. In the Nigerian society, the English language is also the only language commonly used by the different ethnic groups that make up the country. Thus, it is recognized as the official language of the country (Olaofe and Akaneme, 2014). As an official language, English functions as the language of governance, media, and education.

In Nigeria's educational system, the English language is the language of instruction and also a compulsory subject from primary four through tertiary education (FRN, 2013). At the tertiary stage of education, the English language as a compulsory subject is taught under the General Studies Programme (GSP). GSPs are compulsory courses all students in any university must take, irrespective of their discipline (Oladunjoye, Olaluwoye, & Olufemi, 2016). GSPs are indispensable since tertiary institutions are required to make their students part of a mandatory programme that will cut across all special disciplines in the school (FRN, 2013). It is important to mention that in universities, the General Studies Programme is also made up of other courses such as: Use of Library, Philosophy and Logic, Introduction to Social Sciences, Natural Science, Nigerian Peoples and Culture, Peace and Conflict Resolution and Entrepreneurial Studies.

The Use of English as a General Studies Programme was instituted to equip undergraduates with the adequate knowledge they need to excel in academic pursuit as well as work life. Rasheed (2017) points out that the Use of English programme was birthed due to the outcry of employers of labour and even lecturers in relation to the incapability of a lot of graduates and undergraduates to convey their thoughts articulately in the English language. As noted by Nweke & Nwoye (2016), the painful reality was that many Nigerian graduates could not write common application letters in a language considered an official language. To correct this misnomer, Lamidi (2012) points out that the Use of English programme in universities focuses solely on arming learners with the degree of skills and knowledge they need so as to effectively use the language throughout their university education and in the world of work. Thus, the overall aim of the Use of English programme is to develop in students the required level of English language competence they will need in other to use the language perfectly as a tool for learning and also as a means for fluent communication in the society they will find themselves in after school (University of Nigeria Nsukka's Use of English Handbook, 2010). To achieve this aim, there are basic language skills every student of the Use of English must be taught. As contained in the aforementioned handbook, some of the language areas stressed in the course include, oral English, grammar, reading comprehension and writing.

In the area of oral English, students of the Use of English are taught the importance of oral communication, articulation of English speech sounds, stress patterns of English and intonation in English. For the grammar aspect, parts of speech, types or elements of the sentence, phrases and clauses, concord/agreement in sentences and error identification and correction are taught. In reading comprehension, students are taught the meaning of reading comprehension, factors that affect reading and reading comprehension techniques. Lastly, in the Use of English

curriculum, the teaching of the writing skill involves teaching students the meaning, nature/purpose of writing, paragraph formation, qualities of good writing, form, diction, language and style in writing, technical writing process and characteristics (University of Nigeria Nsukka's Use of English Handbook, 2010). As is the case with every teaching and learning process, determining the level of set objectives attained by learners is very important. For the Use of English programme, a test is often used for this purpose.

A test can mean different things when viewed from different angles. Okwor (2018) stated that strictly speaking, a test is the act of administering an instrument; however, it can also be used to refer to an instrument itself. Whichever angle it is viewed from, a test is an assessment tool fundamentally used to find out the level of a given trait possessed by an individual. In teaching and learning, what is tested can affect what is taught, how it is taught and ultimately what is learned. According to Senel & Tutunis (2013) these cross effects are known as wash back effect in language testing. Tests play important roles in determining what goes on in the classroom in terms of what, and how teachers teach. For testing students' academic progress in higher institutions, different formats such as essays, dissertations, examinations, assignments, projects, and presentations are used. Out of this lot, examination remains the most commonly used tool (Garas & Hasan, 2018).

Over the years, the modes through which examinations are administered have continued to evolve. For instance, for administering the Use of English examinations in universities in Nigeria, paper-based tests were previously preferred. In paper-based tests, students are presented with some set of questions on paper and are required to supply the answers using writing materials such as pen or pencil (Hensley, 2015). The marking, recording, and publishing of results are done manually in paper-based tests. However, due to the ever increasing number of

students, educators have constantly been on the lookout for a more efficient way for examining students. More so, issues associated with paper-based tests such as huge amount of money spent on printing, long period of time taken to administer the examination, and non-consistent scoring patterns noticed among raters, have all contributed in making another mode of testing known as computer-based tests to become increasingly preferred for administering examinations in universities in Nigeria. More importantly, the shift to computer-based test can be traced to the fact that Federal Republic of Nigeria (2013) indicated that teaching in Nigeria should be practical, activity based, experiential and ICT oriented. Furthermore, at the tertiary education level, the policy also strongly recommended the incorporation of computer-based tests and other forms of technology to further enhance the quality of education in the country.

Computer-based test is one of the greatest impacts of technology on the assessment process in education. Olumorin, Fakomogbon, Fasasi, Olawale, and Olafare (2013), defined computer-based test as a means of conducting tests and assessments using organized systems on computers. In the words of Alabi, Issa and Oyekunle (2012), computer-based test is a system of test administration where computers are used to deliver, mark, grade and publish test and test scores. Computer-based tests are therefore tests delivered using computers and allow for electronic grading and publishing of test results. Researchers agree that computer-based tests (CBT) help to solve the numerous troubles usually associated with paper and pencil tests such as examination venue capacity issues, discomfort for examinees, long period of waiting for the release of results, examination malpractices, high cost of providing writing materials for the examination and inconsistency in scoring and grading associated mainly with human raters (Scheuermann & Pereira, 2008 ; Chatzopoulou & Economides, 2010; OECD, 2010; Fagbola, Adigun., & Oke, 2013; Chua & Don, 2013, Ajinaja, 2017).

Owing to the fast marking and grading of scripts that computer-based test promises, those conducting examinations for large number of students were very quick to embrace CBT. Affirming this, Erle, Benjamin, Einar, and Raymond (2006) noted that CBT gained its first momentum as a means of testing when large-scale professional examinations bodies such as the United States Medical Licensing Examination (USMLE) started using it in 1999. Similarly, in Nigeria, the CBT as tool for examination administration became popular in 2013 when the Joint Admission and Matriculation Board (JAMB) used it first for conducting Unified Tertiary Matriculation Examination (UTME). More recently, some universities have adopted this mode of test delivery for their examinations. For instance, Covenant University and University of Ilorin were the first to use computer-based test in conducting general studies examination in the 2013/2014 session (Olawuyi, Tomori & Bamigboye, 2018). Other universities including the University of Nigeria, Nsukka and Nnamdi Azikiwe University, Awka in the 2015/2016 session adopted the tool. Typical of such courses examined through CBT in Universities is the Use of English as General Studies course which is a university-wide course usually with large population of students.

The nature of the Use of English Computer-Based Test in most Nigerian universities is very similar. It is often a 30-minute examination consisting of 70 randomly delivered multiple choice questions (Agbo & Agbo, 2019). These questions are mostly on aspects of grammar and on the books assigned to the students to read for the semester. The Use of English Computer-Based Test in Nigerian universities is often not internet based; rather it is done using a Local Area Network (LAN). This means that all computers to be used for the examinations must be located within the area.

As expected, The Use of English Computer-Based Test has allowed for a faster scoring of students' scripts and speedy publishing of results. More so, studies have shown that students' grades in general study courses and other large scale examinations in Nigeria have been greatly enhanced since the adoption of CBT as the means of examining students (Saani, & Mohammad, 2015; Obikeze, Ifeakor, Akujieze & Anujionye, 2019). However, these students do not yet exhibit as much competency and performance in the English language to justify their high grades in the course. Commenting on the falling standard of English usage in Nigeria, Akinnaso (2018) noted that there are persistent errors in the written and spoken English of Nigerians especially among young graduates from Nigerian universities. Alubo (2018) also decried the poor quality of the English language used by graduates from Nigerian universities. According to the author, employers are often shocked to realize that some graduate applicants could neither write nor speak fluently in the English language. Furthermore, the researcher's interactions with undergraduate students from universities in south east Nigeria revealed that there is a worry among students about the quality of the examination given to them through the CBT mode. They pointed mainly on the inadequacy of questions in the examination and on the time allotted for the examination. To this end, there is a pressing need to justify the suitability of computer-based testing mode for examining and evaluating the level of English language skills attained by the Use of English students.

Suitability can be viewed as the extent to which something is appropriate for serving a given purpose. In Procter (2015), suitability is defined as the degree to which something or someone has the right qualities for a particular purpose. Similarly, McNicoll (2011) explained that suitability is the ability of an object to be appropriate for what it is used for. Adopting and using any technology in education is often considered as a very tricky issue. This is because,

even after the technology has been trial tested before being adopted for use, the effects it will have may still be favourable or unfavourable. According to Bates (2015), there are certain factors that must be considered by an institution before it can go ahead and adopt any technology for use. Some of such factors include: suitability to course objectives, students' needs and organizational or institutional structure. Put more succinctly in Bates and Poole (2003), subject requirement, students' perception, availability of resources and institutional support should be key factors to be considered in selecting any technology that is to be used in the educational process. In line with these, the researcher intends to find out the suitability of computer based test for Use of English programme examinations in terms of its suitability for testing the skills of language taught in the course, students' perception of CBT as well as the challenges associated with using CBT for the Use of English examinations.

The suitability of test items goes a long way in determining the overall validity of a given test. It should be noted that one of the key factors considered when deciding whether an assessment is beneficial is the assessment tasks' relevance to the purposes and learning outcomes of the course in question, while also keeping in mind the attitudes and skills that needs to be assessed (Dammas, 2016). These purposes and learning outcomes affect to a large extent the nature of the items of a given test. According to the Center for Innovation in Teaching and Learning(CITL) (2018), for some instructional purposes, one or another item type may prove more efficient and appropriate. It follows that in Use of English where speaking, grammar, reading and writing are taught, the item formats appropriate for testing each of these areas may differ significantly. Commenting on this, Powers (2010) explained that while reading and grammar are frequently assessed through multiple-choice items, skills of speaking are best evaluated using performance tests (a form of test that requires testees to engage in the activity

they are being tested on). This is simply because learning outcomes expected in grammar and reading are more cognitive based while the ones for speaking and writing are more psycho-motor oriented. Furthermore, the appropriate time for completion of tests, as well as scoring pattern for each of these skills differ significantly. While some may require longer time, others may be completed within a short time. Similarly, while some can be scored using predetermined scoring patterns that can be easily loaded into a computer, others require human raters. In all, a suitable test must not only be able to obtain holistic information on students' ability levels on the skills of English they have been taught but must also do this in the appropriate manner that they should be obtained. Hence, administering tests which are not in tandem with these specifications may give a false view of students' actual achievement in any of these language skills. Thus, it is important to examine the suitability of computer-based test for Use of English examinations. Suitability of computer-based tests for Use of English examinations may also be affected by students' perception about the test mode.

Students' perception about a given phenomenon most often affects their impressions as well as reaction to it. According to Hazari (2014), students' perceptions are their thoughts, beliefs, and feelings about persons, situations, and events involved in the teaching and learning process. The author further stated that these perceptions are important for determining the behaviour of students towards events in the classroom. As an instance, a visiting teacher may use a method of teaching which he/she feels is very good to teach a group of students, however, the students may not share his views on the said method. They may perceive the method as not useful enough for the content of the lesson. Since students are the focal point of teaching and learning, the method will be readjusted to fit them. The same can be said of the Use of English computer-based test. The perceptions of the students will ultimately affect the suitability of the

computer-based test. At the University of Ilorin, Tel-la and Bashorun (2012) reported that due to the perceived difficulty of computer-based tests, students were anxious and this contributed to the poor academic performance of students in the first few years CBT was used in the school. Thus, students' perception plays a major role in the use of CBT in examinations. In universities in South East Nigeria where this mode of testing is relatively new, there is need to ascertain students' perception of the suitability of the mode in Use of English examinations. There are also certain challenges that can influence the suitability of computer-based test. These challenges can be infrastructure or technical-skill related.

The level of infrastructure in place for conducting computer-based test also affects its suitability for Use of English examinations. Infrastructure can be both material and non-material. As explained by Torrisi (2009), infrastructure can be seen as the basic physical and organizational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise. Infrastructural requirements needed for a computer-based test may include: enough examination halls, adequate and functional computers, electricity and up to date softwares. Even though most universities in Nigeria run CBTs that are not internet based but Local Area Network (LAN) based, stable internet remains a vital Infrastructure for CBTs such as Unified Tertiary Matriculation Examination (UTME). Although the new clamour for computer-based test promises better opportunities for IT experts, the fact still remains that schools may not be able to provide enough bandwidth to handle all the computers used for the examination online. Schools may also be unable to provide computers and halls to accommodate all the students that will be taking a given examination. Dibu, the registrar of Joint Admissions and Matriculation Board in 2014 also listed power failure and internet speed as some of the issues JAMB will try to resolve before making computer-based tests compulsory for its

candidates (Agekameh, 2014). In Universities however, computer-based tests are compulsory for Use of English examinations. Therefore, it is important to examine these infrastructural challenges encountered in the use of computer-based test for this purpose. Other challenges could be technical-skill related.

The word "technical" may be seen as relating to a particular field or art often practical while "skill" has to do with a high level of mastery or competence exhibited in doing a particular thing. Marrying the two terms, Doyle (2018) defined technical skills as those abilities and knowledge needed to perform specific tasks. Similarly, Chen (2018) explained technical skills as the knowledge and abilities needed to accomplish computer-related complexities, as well as other tasks relating to technology. Doyle (2018) further explained that technical skills are practical, and often relate to mechanical, information technology, mathematical, or scientific tasks. Some examples of technical skills needed by IT staff of Universities as they concern computer-based test include knowledge of software development and updating skills, web design, computer programming skills, maintenance skills for equipment and tools such as computer, keyboards, Uninterrupted Power Supply (UPS), and network cables (Agbo & Agbo, 2019). Commenting on the technical skills needed to run an effective computer-based testing system in Nigeria, Abdulhakim, Nwachi-Ikpor and Onyibe (2015) noted that Nigeria does not only lack Information Communications Technology (ICT) infrastructure, it also lacks the human skills and knowledge to fully integrate CBT into its examination processes. In essence, there is need to have a readily available, knowledgeable and highly skilled pool of technical staff assigned with the overall duty of ensuring smooth computer based test administration in Universities. There is however not enough evidence to prove that this all important need is met.

Thus, it is important to examine the technical skill challenges encountered in using computer-based test for Use of English examinations.

The arguments above recognize the fact that in Nigerian education system, computer-based test is a major innovation. However, there is a pressing need to establish an empirical backdrop upon which the continued use of computer-based test especially in Use of English examinations can be based. This, as pointed out above, is necessary because as a measure for judging students' skill, its appropriateness to subject requirement which is unclear needs to be determined. Furthermore, since students are the most affected, their perception of the suitability of CBT for the use of English examinations also needs to be established. Moreover, challenges relating to infrastructure and technical skills in administering suitable computer-based Use of English examination also have to be identified and addressed.

Statement of the Problem

In times past, Paper-Based Test (PBT) was the only tool used for examining students in Nigerian Universities. However, in recent times, Nigeria's education system has embraced the use of computer as an emerging technology not only for teaching and learning and resources management but also in the examination processes. In the area of examination, Computer-Based Test (CBT) has in the past six to seven years gained increased attention in most universities in the country. Primarily, CBTs help to save examination time, lower administrative cost of examinations and provide automated grading.

However, it is worrisome to see that some students who passed Use of English CBT with high grades still cannot fluently express themselves in the language through speaking and writing to match their excellent grades. This casts doubt on the ability of the Use of English

examinations to be used to make value based judgment about students' actual English skills. It has also been observed that the computer-based test used in the Use of English examinations relays only multiple choice objective test questions which may be unsuitable for examining students' abilities in some aspects of English taught in the Use of English proramme. Furthermore, students from Nnamdi Azikiwe University and University of Nigeria alike complain about the time allotted for the examination citing that it may influence their performance. Additionally, with the epileptic power supply, limited number of CBT centres, computers, internet facilities and qualified technical staff in universities in Nigeria, stake holders in education nurse the fear that universities may not yet be ready to use computer-based test in the Use of English examinations. It is based on this background that the current study examined the suitability of computer-based tests in the Use of English examinations.

Purpose of the Study

The main purpose of this study was to determine the suitability of Computer-Based Test (CBT) in the Use of English examinations in federal universities in South East Nigeria. Specifically, this study determined the;

1. suitability of CBT for testing oral English in the Use of English examinations.
2. suitability of CBT for testing reading comprehension in the Use of English examinations.
3. suitability of CBT for testing grammar in the Use of English examinations.
4. suitability of CBT for testing writing in the Use of English examinations.
5. students' perception of the use of CBT in the Use of English examinations.
6. challenges in using CBT in the Use of English examinations.

Significance of the Study

This study has theoretical as well as practical significance. Theoretically, this study is anchored on, Bates Anthony William and Poole Gary's SECTIONS Model of Technology Selection and Venkatesh Viswanath, Davis Fred, Davis Gordon and Morris Michael's Unified Theory of Acceptance and Use of Technology (UTAUT)

The SECTIONS Model of Technology Selection is proposed by Bates and Poole in 2003. The model is based on the assumption that even in universities with specialized centres for the development of technology-based teaching, it is nearly impossible to keep abreast with new technologies or software development in the case of an already existing technology without having to jeopardize the teaching and learning process. In such situation, the model proposes that subject requirement, students' perception, availability of resources and institutional support should be key factors to be considered in selecting any technology for use (Bates et al, 2003). Through the lens of the present study, the usefulness of the theory in selecting and using computer-based tests for Use of English examinations was established.

The study was also anchored on the Unified Theory of Acceptance and Use of Technology (UTAUT). As put forward by Venkatesh et al. (2003), the Unified Theory of Acceptance and Use of Technology (UTAUT) is a technology acceptance theory that primarily tries to explain the intentions of users when they make use of an information system and their successive usage behaviours. The theory holds that performance expectancy, effort expectancy, social influence, and facilitating conditions are four key constructs in this regard. However, while the first three relates directly to the intentions for use and usage behaviour of individuals, the fourth one is a direct determinant of user behaviour only. In the light of the current study, the

efficacy of this theory for determining students' perception of the use of computer-based test was examined and thus scholarly discussions on the theory was also enriched.

Practically, this study is of enormous value to stakeholders in the teaching and learning of English language especially in universities and other higher institutions of learning. To this end, undergraduate students, lecturers, National Universities Commission (NUC), Information Technology (IT) experts and even researchers/textbook writers are first hand beneficiaries of the findings of this study.

For the undergraduate students, the findings of this study when published in their student bulletins will go a long way in helping them discover the importance of English language in their academic life. Furthermore, they will also understand that as specified in the National Policy on Education, electronic testing in form of CBT has come to stay in the academic system and thus it is only imperative that they embrace and keep abreast with the emerging trend of language testing. Most importantly, the study exposed them to ways to get around issues such as time constraints when writing computer-based Use of English examinations

Through conferences, workshops and publications in educational journals, lecturers will also understand the level of demand placed on them not only for implementing Computer assisted instruction but also to sharpen their question setting skills. This is because, for a proper CBT to be conducted, there is need for adequate amount of questions covering all the domains of learning in the item bank and these items need to be valid as well.

This study when published will help the National Universities Commission (NUC), which is the body charged with making sure that the quality of education at the university level is always at its best, become aware of the various ways they need to come-in to help our

universities implement effectively an IT driven learning environment. For instance, problems such as inadequate infrastructure and skilled technical staff to further elevate the standard of the CBT examinations can be sorted if the Federal government through the NUC is made aware of these issues through this research.

When published in journals of Information Technology (IT), the findings of the study will serve as an eye-opener to system analysts and IT experts in the areas of CBT development and management. This is because it presented detailed discussion on the need to develop a computer-based test model that can interface proper question types for all skills of English. Hence, the study will prompt innovations in the area of computer-based testing.

Finally, this study when published in reputable journals and educational research websites will serve as a reference point for budding researchers who will like to explore the emerging technologies used for testing of which CBT is at the fore. Again, a study on technology based language testing/assessment such as this will spur researchers and text book writers to explore this area of knowledge and produce materials which will be invaluable to teachers as well as students in understanding the effect of examination on teaching and learning.

Scope of the Study

The study was carried out in federal universities in South East Nigeria. The study concentrated on examining the suitability of Computer-based tests in the Use of English programme in the selected universities. It examined its suitability for determining students' ability and skill levels in the language areas taught in the programme such as reading comprehension, grammar, oral English and writing.

Further, the study examined students' perception of the Use of English computer-based tests and the challenges encountered in delivering a suitable computer-based Use of English examination in these Universities. Use of English lecturers, ICT staff and second year undergraduate students of federal universities in South East Nigeria were used for the study.

Research Questions

The following research questions were posed to guide this study:

1. How suitable is CBT for testing oral English in the Use of English examinations?
2. How suitable is CBT for testing reading comprehension in the Use of English examinations?
3. What is the suitability of CBT for testing grammar in the Use of English examinations?
4. How suitable is CBT for testing writing skill in the Use of English examinations?
5. What are students' perceptions on the use of CBT in the Use of English examinations?
6. What are the challenges of using CBT in the Use of English examinations?

Hypotheses

The following null hypotheses were formulated to guide the study. They were tested at $p < 0.05$ level of significance.

Ho_1: There is no significant difference in the mean responses of lecturers and students on the suitability of CBT for testing oral English in Use of English examinations.

Ho_2: There is no significant difference in the mean responses of lecturers and students on the suitability of CBT for testing reading comprehension in Use of English examinations.

Ho_3: The difference in the mean responses of lecturers and students on the suitability of CBT for testing grammar in Use of English examinations is not significant.

H_{O4}: There is no significant difference in the mean responses of lecturers and students on the suitability of CBT for testing writing skill in Use of English examinations.

H_{O5}: There is no significant difference in the mean responses of ICT personnel, lecturers and students on the challenges of using CBT in Use of English examinations.

CHAPTER TWO

LITERATURE REVIEW

Literature related to this study are reviewed under the following sub-headings:

Conceptual Framework

- Use of English Programme
- English Language Testing
- Modes of Testing
- Suitability of Computer-Based Test.

Theoretical Framework

- SECTIONS Model of Technology Selection (Bates and Poole, 2003)
- Unified Theory of Acceptance and Use of Technology (Venkatesh Viswanath, Davis Fred, Davis Gordon and Morris Michael, 2003)

Empirical Studies

- Studies on English and Computer-Based Test
- Studies on Oral English and Computer-Based Test
- Studies on Grammar and Computer-Based Test
- Studies on Reading Comprehension and Computer-Based Test
- Studies on Writing and Computer-Based Test
- Studies on Students' Perception and Computer-Based Test
- Studies on Infrastructural and Technical-Skill Challenges and Computer-Based Test

Summary of Literature Reviewed

Conceptual Framework

Use of English Programme

English language is the language of mutual intelligibility spoken by the people of various ethnicities that make up Nigeria. Thus, it is the official language of the people. Udofot (2015) points out that in Nigeria, the English language is the language of commerce, governance and education. In other words, to be able to function in a society such as Nigeria, one must have a reasonable degree of understanding of the English language. Thus, the English language is compulsorily taught at every level of the country's education system. At the tertiary level of Nigeria education, it is taught under the general studies programme as the Use of English.

Literally, the word 'use' is seen as the act of performing or fulfilling a given purpose. The same meaning can be said to be embedded in the title of the course 'Use of English'. According to Okwor (2010), the title of the course shows that it is solely focused on the development of English language skills that will make students effective communicators in English. In Olaofe and Akaneme (2014), Use of English is explained as a four credit unit course designed to help learners gain adequate understanding on varieties of issues relating to effective communication in and with English language. For Sotiloye, Bodunde, Akeredolu, Adebiyi and Aduradola (2016), Use of English is a course designed to improve students' competence in the English language in higher institutions. Similarly, the National Universities Commission (2007) described Use of English programme as a course taught so as to equip learners with the knowledge of the English language that will help them use the language efficiently during and after school. Expanding on this, University of Ibadan's Use of English website (2018) explains the course as an intensive English language course, specifically designed to help freshmen develop correct and appropriate usage of the language. From the foregoing, three things are clear; first, the Use of English programme is a compulsory course for all new undergraduate

students; secondly, the course emphasizes only the teaching and learning of English language skills. Thirdly, the teaching is undertaken primarily to help students use the language effectively for communication purposes within and outside the school. Thus, Use of English can be defined as a university wide course through which new students of various disciplines are taught basic English language skills that will enable them use the language effectively and efficiently in and outside the school. The title thus symbolically represents the core objectives of introducing the course.

Just like every teaching and learning venture, certain goals and objectives underlie the Use of English programme in universities. In a broad sense, the general studies programmes, since their inception in 1961 is aimed at empowering students to gather some relevant awareness or knowledge beyond their individual areas of specialization for a better and successful living (NUC, 2007). Particularly, however, the goals of the Use of English programme as stipulated by the commission is to produce graduates from all disciplines who are capable of communicating efficiently in oral as well as written English. In the words of Nwoye and Nweke (2016), the Use of English programme particularly aims at helping students build all the competencies in English language that they will need for effectively using the language as an instrument for their studies and an effective communication tool in the society and in their future places of employment/enterprise. With this aim as a backdrop, several institutions formulated specific objectives for the Use of English programme.

For the University of Nigeria, Nsukka, which was the first institution to adopt General Studies, the aim of the Use of English programme is to develop in students the greater skills of reading, writing and speaking. For Alex Ekwueme Federal University, Ndufu Alike Ikwo (FUNAI), the course is undertaken to foster intelligibility and effective communication in English language (Directoriate of General Studies FUNAI, 2018). For National Open University

of Nigeria (2014), the Use of English has the specific aim of giving students an understanding of how to communicate effectively in English- which is the language of instruction at the tertiary level of education. Synthesizing these ideas, Nwoye etal (2016) submit that the objectives of the Use of English programme in Nigerian universities are to:

a). provide a strong and functional English language foundation for university students in all faculties or discipline.

b). nurture an always inspired body of young English language users who will be assertive and eloquent as young graduates should.

c). Equip students with ample approaches they can use for organizing time; taking, organizing and developing notes.

d). help students know and understand how to sufficiently make the most of the library.

The Use of English programme is usually completed in two semesters. The first is commonly referred to as GSP 101 in most institutions, the second is termed GSP 102. And for each of these semesters, one or two hours is allotted to the course per week. In other words, lecturers have about twenty-eight hours per semester to teach the course and by extension, achieve the aims and objectives of the course.

Usually, teaching of the course involves introducing students to the basic principles of communication in English, showing them how the principles of communication in English can be applied to language use in diverse situations, sensitizing them to the rules of English and applying these rules in diverse areas where the language is used, increasing their proficiency in the language in a way that will make them capable of performing language functions in social and academic settings. According to Michael Okpara University of Agriculture's Use of English website (2018), the course develops in the students the listening language skills as well as refines the structure of their English appropriately. In addition, School of General Studies, Nnamdi

Azikiwe University (2018) explains that the course teaches the students the different aspects of the grammar of English, such as parts of speech, phrases, clauses, concord, voice, direct and indirect speech, as well as tense, mood and aspects. Students are also made to learn the speaking, reading and especially, writing skills. The course also emphasizes vocabulary development using different registers/fields, including literary appreciation and figures of speech. The writing tasks is often designed to teach students to master different types and forms of writing such as letters, articles, reports, memorandum, book reviews and term papers. From the foregoing, some of the major aspects of English language taught in the Use of English programme include oral English, grammar, reading and writing.

- *Oral English*

Oral English is used to denote the aspect of English that is spoken. Often, it is well understood as the opposite of written English. It refers specifically to the English language which is expressed with the aid of spoken sounds. According to Nordquist (2017) oral English has to do with the way in which the English language is transmitted through a conventional system of sounds. The importance of oral language cannot be over emphasized.

One of the sole aims of learning any language is to be able to communicate fluently in and with it. Oral communication is the most common form that communication takes place. For language students, speaking does not only allow them transmit messages but also helps them explore and come to understand ideas and concepts; identify and solve problems; organize their experience and knowledge; express and clarify their thoughts, feelings, and opinions (Santa Maria Del Camino, 2015). In a similar argument, Brooke (2018) states that English language learners need the oral language skills to be able to participate in conversations, ask questions, and share their own unique perspectives on the go. For these reasons oral language has come to

be regarded as a critically important area of learning for English language learners (Brooke, 2018). Further, the bed rock of literacy and a major means of learning in and out of school is the oral language. In line with this, Baxa and Reeder (2017) opined that oral language lays the foundation for the reading and writing skills which are skills that children are expected to develop as they enter and progress through school. The authors explained that students will need oral language to connect with their peers and teachers in the classroom, and throughout their lives as they grow into adulthood. Oral communication skills are therefore regarded as fundamental when it comes to the development of other skills of language such as listening, reading and writing. It can be viewed as the glue that puts all the components of a language together. Thus, it can be argued that having a very solid foundation in oral language will help children become successful readers and strong communicators.

Developing the oral proficiency of students requires that the curriculum is designed to equip learners with the rudiments of correct pronunciation of English words. This is often done by teaching learners the English speech sounds and their subsequent language-specific arrangements into syllables and words. These are referred to as the segmental and suprasegmental features of the language. Information from University of Nigeria, Nsukka's Use of English website shows that in line with the above, students are taught the speech production process, classification of English speech sounds, articulation of speech sounds,, and principles of oral delivery/speech making and social interaction. As contained in University of Ibadan's Use of English website (2018), the use of English programme curriculum teaches oral English through topics such as speech sounds of English, that is, vowels and consonants, stress, syllable and intonation of English.

As outlined in the International Phonetics Alphabet (IPA), there are 44 speech sounds in English language. These sounds are further divided into two major categories namely: vowels and consonants. The vowel can simply be viewed as a speech sound that is unblocked by the tongue, teeth, or lips during production . In articulating vowels, the mouth is often open. The vowel sounds of English are divided into monothongs and diphthongs. They include /iː, i, e, ə, æ, ɜː, ʌ, ɑː, ɒ, ɔː, ʊ, uː/ and /eɪ, aɪ, ɔɪ, ɪə, ɛə, ʊə, aʊ, əʊ/ respectively. According to Mlinar (2012), a diphthong is a sound made by gliding from one vowel to another. Diphthongs are represented phonetically by a sequence of two letters as can be seen above. Depending on the sound the first letter of the sound is gliding to, diphthongs can be opening, centring, or closing. Hence, while /eɪ, aɪ, ɔɪ,/ are opening diphthongs /ɪə, ɛə,/, and /ʊə, aʊ, əʊ/ are centring and closing diphthongs respectively. Classifying vowels require a different paradigm from those used in consonants above. In classifying vowels, the following three things are considered: which part of the tongue is raised: front/central/back, how high the tongue is raised: high, middle, low; whether or not the lips are rounded or spread.

There are 24 consonant sounds in English Language. These are: /p, b, t, d, k, g, f, v, m, n, ŋ, s, z, ʃ, ʒ, θ, ð, tʃ, dʒ, l, r, j, h/ and /w/. The consonant sounds of English are grouped according to their places of articulation (bilabials, labio-dentals, inter-dentals, alveorlars, palatals, velar and glottal), manner of articulation (plosives, fricatives and affricates nasals, liquids and glides) and state of the glottis (voiced and voiceless).

The suprasegmental features of oral English are also taught in the Use of English Curriculum. The term suprasegmental refers to aspects of oral language that are beyond vowels and consonants. Coined by American structuralists in the 1940s, suprasegmentals are usually referred to as the musical aspect of speech (Nordquist, 2018). According to Meta (2014), the

vocal effect that extends over one sound segment in an utterance is a suprasegmental. Suprasegmentals are important in both the accurate production and perception of speech. Stressing on this, Mannel and Cox (2009) reiterated that suprasegmental aspects of language convey rhythm and melody and so contribute a great deal to meaning and also gives a language its distinctive cadence. Knowledge of suprasegmentals not only helps speakers convey their thoughts properly, it also helps listeners make sense of what has been said to them easily. This is because, in real time speech, it is not the knowledge of consonants or vowels (segments) that help speakers to convey their intents, rather it is the speakers' stress patterns, rhythm or pitch that helps send the message home. For instance, understanding long and short vowels may help one distinguish between words like kin /kin/ and keen /ki:n/, however, in a conversation such as, "Blessing is my kin", the production of the word /kin/ will be louder and lengthier even though it contains a short sound. This is simply a function of a suprasegmental known as stress. In other words, suprasegmentals are responsible for accurate production as well as understanding of speech. The suprasegmentals of English include: syllable, stress and intonation.

The words we speak come in a sequence of recognizable beats, each of these beats can be said to denote a syllable. Syllables are often thought of as the building block of words. For instance, the word 'computer' is made up of three syllables: com-pu-ter. The syllable is a structural unit within which one can identify a sequence of consonants and vowels (Manell and Cox 2009). Jehjooh (2014) sees syllable as the way in which vowels (V) and consonants (C) combine to form various sequences. For this study, a syllable is a unit of pronunciation that must consist of a vowel sound, or a nasal (m, n, ŋ), but with or without preceding or following consonant sounds. Following these definitions, a syllable consists of an onset (beginning) and a rhyme which is further sub-divided into a nucleus and a coda (Roach, 2001). For instance, in a

word like /sin/, /s/ stands as the onset, while /ɪ/ and /n/ serves as the nucleus and coda which are collectively referred to as the rhyme. A syllable may have zero to three onset and zero to four coda. However, the nucleus or peak can only be one vowel, diphthong or a syllabic consonant. Thus, the structure of English syllable is $C^{0-3}(V)\ C^{0-4}$, where C stands for consonants and V for vowels. The next concept closely related to syllable in spoken English is stress.

During conversations, it is not uncommon to realize that certain words or a part of a word is made to sound louder than other surrounding words. In English language, it can be said that that word is stressed. Stress is the emphasis on a particular syllable in a word. It has to do with the level of prominence accorded to a given syllable that distinguishes it from surrounding syllables. Stressing a syllable translates to making it longer, louder, and higher in pitch (Kim, 2018). Pronouncing words with the stress on the correct syllables helps improve spoken English. This is because it helps the speaker emphasize only on the important part of the utterance and thus makes a sentence easier to understand. Stress placement affects the overall meaning of utterances. It is imperative that learners of English learn the English stress pattern because the meanings of words can be significantly influenced by a change in stress. Often, students of Use of English are taught patterns of stress placement in monosyllabic and polysyllabic words. Furthermore, they are also taught sentence stress.

Monosyllabic words are words that contain just a single syllable while polysyllabic words are words of more than one syllable. Examples of monosyllabic words include: an, go, be, can, look and so on. Polysyllabic words include: to-ma-to, in-cre-di-ble, and so on. In English, most monosyllabic content words are stressed while function words are not stressed (The sound of English, 2016). This is because why content words carry real meaning; function words exist to support or explain these meanings better. Nouns, verbs, adverbs and adjectives are content words

while pronouns, prepositions and conjunctions are regarded as function words. for instance, in a sentence such as Dennis was born in Enugu, words like 'Dennis', 'born' and 'Enugu' will be pronounced with noticeable loudness and high pitch as against words like 'was' and 'in'.

Stressing polysyllabic words is a little more complex and thus difficult to master. The ground rule for stressing in English is to pay attention to pitch and loudness of the voice and duration of the utterance. To help students, Yurtbasi (2017) put forward some rules for stressing polysyllabic words. According to the author,

1. Nouns of two syllables are stressed on the first syllable, example: SUBject, KNOWledge.
2. Two syllable adjectives are also stressed on the first syllable, example: SPAcious
3. Verbs that have two syllable are stressed on the last syllable, example: subJECT, adVISE
4. Words that have three syllables and end in "-er" or "-ly" often have a stress on the first syllable. Example: MA-na-ger ORderly,
5. Words that end in *–ic* , *–sion*, *–tion* are stressed on the second-to-last syllable, example: ecSTATic, exTENsion, traDItion
6. The third syllable from the right are stressed in words that end in *–cy,-ty, -phy, -al* and *–gy*. Example: deMOCracy, unCERtainty, geOGraphy, , CRItical, radiOLogy).

It is important to note that there are exceptions to some of these rules. According to Quynhnguyen (2018), mastering the subject of word stress is not easy, as there are many rules and exceptions. The author further noted that while native speakers can do it naturally, English learners have to get there through a lot of practice and repetition.

Intonation is also a very important suprasegmental feature of the English language that is taught in the use of English programme. Intonation is simply the rise and fall in the pitch of the voice when speaking. According to Nolan (2014), intonation can be seen as means of conveying information in speech that is independent of the word or utterance. In other words, the author states that intonation has to do mainly with the modulations of the pitch of the voice. There exist different tone types in English. These are according to Roach (2001) the fall, rise, rise-fall, fall-rise and level tunes.

In English language, intonation can be very useful in conveying different kinds of information**.** It can be used to perform grammatical functions, attitudinal functions and discourse functions, (Beckman and Venditti, 2010). In terms of grammatical functions, intonation helps a listener to recognize the grammar and syntax structure of what is being said. For instance, by using the information contained in the intonation a listerner will understand whether a sentence is a question or a statement. Intonation can also perform discourse function. The intonation of a speaker can signal to the listener what is to be taken as new information, what response to give and whether or not to start speaking. In this regard, Nolan (2014) explains that intonation helps to regulate turn-taking in conversation. In essence, there are intonational mechanisms which speakers can use to either indicate that they have had their say or that they are still in full flow and do not want to be interrupted. Intonation also performs attitudinal functions. Intonation can be used by a speaker to express attitudes such as openness, eagerness, or resentment.

There is no doubt that understanding the fundamental elements in oral English is very important for every English learner. Students of Use of English are thoroughly taught these features in their lecture hours. However, since the emphasis of the course is on use, it is even

more important that students are made to listen to tape-recorded passages, e.g. conversations/dialogues, drama sketches, arguments, and so on. (University of Ibadan, 2018).

- *Grammar*

Grammar is a very important element of language that every language learner must understand and master. Over the years, different scholars have conceptualized grammar from different perspectives. Egbe (2012) reported four meanings of grammar as put out by scholars. According to the author, grammar can be conceptualized as: books that contain descriptions of the morphological and syntactical structure of a language; the knowledge that a native speaker has of his or her language that can be deduced from his utterance; as a set of rules developed to control certain aspects of the usage of native speakers; grammar denotes the body of prescriptive statements about usages that are considered acceptable and those that are considered unacceptable in a particular language. Nite (2012) conceives grammar as that which deals with the rules that govern the internal structure of every language. From the foregoing, it can be deduced that apart from grammar being a book containing the morphological and syntactical structure of a language as proposed by Tomori, grammar can be said to mean the organized body of underlying principles and rules that govern the structure of the written and spoken forms of any language. The latter however forms the bedrock on which grammar instruction in schools is done.

As far as the structure of language is concerned, grammar has two components. These components of grammar are morphology and syntax (Marit, 2007). Morphology is concerned with the rules of word formation, syntax is interested in how words combine into phrases and sentences (Bardal 2012). Students of the Use of English are taught the correct arrangement of words into sentences and the functions of each word in a sentence. It is in this light that

Anugraheni (2016) explained that grammar involves studying classes of words, their inflections, functions and relations in the sentence of language. In the use of English programme, topics on grammar embrace parts of speech (types and functions), phrases (types and functions), clauses (types and functions), sentences (structure, functions and forms), tense, aspect and mood and concord agreement. (University of Ibadan, Curriculum of GES courses 2011-till date). In the University of Nigeria Nsukka's General Studies Handbook (2010) , the list is stretched to include error identification and correction. Armed with this knowledge, language learners will be able to deviate from ungrammatical sentences and thus produce error free written and spoken English.

Although it is required of lecturers to handle all these aspects exhaustively, it is a common practice to find them focusing on some aspect of grammar instruction at this level of education. This may be because at this level for instance, one may not wish to bore the students with repetition of the mechanical definitions of parts of speech say nouns and verbs, rather the mainstay of teaching would be tilted towards showing these students the actual relationships and functions of these groups in sentences and discourse. Furthermore, knowledge of grammar even for the native speakers can only be deduced by the nature of performance. In agreement with this, Lin (2008) avers that teachers of English at the tertiary level should focus on the grammatical concepts that are more effective and essential for meaningful communication. To this end, grammatical areas such as sentence structures (simple, complex and compound), sentence functions (declarative, imperative, interrogative and exclamatory) and sentence forms (rules for direct and indirect speeches and the structure of passive and active sentences) as well as types and functions of phrases and clauses are taught. Concord agreement with special focus on types of concord: subject/verb, singular subject, plural subject, compound subject, subject with connectives (e.g.as well as, along with etc); proximity concord, notational concord, choice

of singular or plural verbs and demonstrative adjectives and the nouns they agree with are also explicitly taught. Through this, students spoken and written language are believed to become error free and thus make them better users of the language.

Having the knowledge of these rules rarely translates into becoming a profound user of English language. Saaristo and Pekka (2015) in their study on the role of grammar on language learning of Finish students found out that the fear of making ungrammatical statements has deterred students from 'using' the English language. According to the authors, this does not in any way help in achieving the goals of language teaching. In this regards, Jack (2018) asserts that contemporary approaches to grammar should describe grammatical knowledge and grammatical systems in terms of the way people actually use the language, not the way they "should use" it. However, it is difficult for a person to learn and use a foreign or second language accurately without formal instruction. This is mainly due to the fact that the second language learner unlike the native speakers does not have an intuitive knowledge of how a language functions. Thus, teaching of grammar is indispensable for a second language student.

- *Reading Comprehension*

Reading is that language skill that involves the recognition and understanding of symbols and words in written texts. Reading can also be viewed as the capacity to process a body of text and understand its meaning, so as to connect it with what is already known by the individual readers or form an entirely new knowledge. According to Sandhu (2016), reading is that which requires one to identify and understand strings of words in a fluid manner. Being able to read is a function of three processes otherwise known as components of reading. Leipzig (2001) identified these processes as word recognition, comprehension and fluency. Reading in its fullest sense involves the infusion of these three components. Judging by the experiences of reading which an

undergraduate student ought to have had through primary and secondary education, they can be safely classified as transitional readers. As described in Pacific Resources for Education and Learning (2012), transitional readers are readers who already have the ability to understand words, read at a good pace but need help in understanding increasingly more difficult texts. Hence, reading comprehension and strategies/ techniques for achieving comprehension are often emphasized in the use of English curriculum (University of Nigeria, 2010)

Literally, comprehension is the ability to understand something. Asit concerns reading, comprehension is an "intentional, active and interactive process that occurs before, during and after a person reads a particular piece of writing" (Sandhu, 2016. p. 6). Reading comprehension is a complex process that involves the interactions between the reader's previous knowledge, strategy used, as well as variables related to the text itself such as the type of text it is (The Rites Fact, 2013). Basically, the main reason for reading can be said to be for comprehension. This is because if a reader succeeds in decoding just words but is unable to understand or relate to what he/she is reading, then reading has not taken place. Without comprehension a text provides the reader with absolutely no information.

Comprehension is very important in reading. Without comprehension, one will just be appreciating the aesthetics of a written text without carving out proper meaning from it. The words in the text therefore remain just symbols to the reader and the meanings embedded within them are never really figured out. Reading comprehension skills when acquired will help an individual in English class and in all areas of academic study. Comprehension skills help students in locating the main points/ ideas as well as the logic in a speech, story, address, argument, debate, lecture and so on. More importantly, comprehension skills eventually transcend into becoming real-world abilities for critical thinking, which are valuable skills

students need so as to become successful in both academic and professional settings (Agrade, 2016). Furthermore, k12 reader an online literacy institute (2017) noted that reading comprehension is a critical component of functional literacy. In order words, for one to live and function in the world of today, one must be able to comprehend everyday texts such as utility bills (electricity, internet), housing agreements (leases, purchase contracts), bus and train schedules, maps, and travel directions. Being able to comprehend what is read is very important in real life situations. For instance, if a person is able to recognize all the letters or symbols used in the dosage description of a certain drug but is unable to understand what they really mean, the person may overdose or under dose and this may lead to serious health challenges.

Since reading comprehension is an all important skill, it needs to be properly taught. Furthermore, the type of reading instruction students get plays a vital role in their reading comprehension ability. The author further said that simply providing opportunities that require students to read will not give them the comprehension strategies they need to be proficient readers. Thus, there is a need for students to be taught directly the reading comprehension strategies. Moreover, Reed (2016), states that a lot of instruction (teaching) on comprehension needs to happen in order to help students be successful with the ways we measure their reading abilities from primary three and beyond. Harping on this, k12 readers, (2017) stated that reading comprehension strategies must be taught over an extended period of time and strategies must be refined, practiced and reinforced continually even in high school (university level of education).

To understand the strategies for reading comprehension, it is important to mention first that in the realm of teaching and learning, there are primarily two broad types of reading comprehension skills. These according to Stewart (2012) are the concrete skills and the abstract skills. According to the author, concrete comprehension skills is the one that helps learners with

the ability to provide answers to questions when the information being asked is explicitly stated in the text read. These concrete skills include knowledge of vocabulary, main idea, fact or opinion, sequencing, following directions and reading for details. On the other hand, abstract skills require the reader to draw on prior knowledge and processes in order to identify what is not explicitly stated. Abstract skills include inference, analysis, evaluation, drawing conclusions, and cause and effect. The reading strategies taught in the use of English include skimming, scanning and SQ3R which stands for study, questioning, read, recite and review.

Although used for different purposes, skimming and scanning are similar because they both require the use of rapid eye movement. Skimming has to do with the act of reading through a text quickly so as to find the general meaning of the passage and scanning involves reading through a text quickly so as to find specific details within the passage (IELTSessentials, 2018). In other words, while skimming helps one to know what general information is within a text, scanning helps one locate particular facts. SQ3R strategy also known as study reading is the strategy employed when one must read a lot in a relatively short time, understand it, remember it for tests, and still retain the main concepts as they will be important for subsequent semesters (Butte College, 2016).

- *Writing*

Writing is one of the productive language skills. Strictly speaking, writing involves the use of representational symbols or letters to convey thoughts especially on paper. In the history of writing pedagogy, the definition of writing has evolved with the three approaches for teaching writing. These approaches include the product/text approach, process/writer approach and more recently the reader/genre approach (Yi, 2009). In the product approach, the formal features of text are a major concern. Thus, writing is seen as the act of producing texts such as essays,

prose, For the process/writer approach, writing a is a creative process which occurs in stages through which established writers discover and reformulate their ideas as they attempt to approximate meaning (Alnufaie and Grenfell 2012). These stages of writing as contained in Deane, Odendahl, Quinlan, Fowles, Welsh, and Bivens-Tatum (2008) include: prewriting, drafting, revising, editing, and publishing. For the genre based approach which was developed out of the concern of whether the process based approach fully addressed the needs of learners saw writing in the light of its usability. The readers or context of use determines these genres. Genres in writng include fiction or novels, grant applications, progress reports, course syllabuses, survey articles and so on. According to this approach, writing is to be seen as the ability to produce a piece of writing for a specified purpose or satisfy the specifications of a certain discourse community by following strictly the structure and content of the discourse while still communicating ideas fluently. (Yi, 2009).

Writing is a very important skill needed by every student at every level of education. As observed by Curry, and Hewings (2003), writing is at the heart of teaching and learning in higher education. Often, students are assessed largely by what they write (term papers, seminar papers and written examinations). Writing pedagogy in the Use of English curriculum is meant to cover both the products of writing, the process of writing as well as the genres of writing. Topics on writing range from the essay (types, parts and how to organize it), paragraph (types,, structure and ways to develop them) and other forms of writing such as letter writing, minute, memos, reports, book reviews.

English Language Testing

Testing is an important part of any educational programme and can be described as the act or practice of giving tests to measure learner's level of knowledge or ability. Rouse (2008)

defined testing as a means of finding out the level of knowledge or skill that has been acquired by a leaner. Similarly, Al-Hamash and Younis in Abdullahi (2018) defined testing as an essential component of educational evaluation which is useful in determining what the learner has learnt with reference to the curriculum. According to Hadi (2008) testing is a method used for measuring a person's knowledge or ability in a given field of knowledge. In other words, testing can be described as a means of measuring the performance of individuals, especially the learners for the main purpose of ascertaining the level of knowledge that has been achieved by the learner with regard to the set objectives of a specified field of knowledge, such as languages.

Language testing deals with the measurement of the level of knowledge about a particular language. Allen (2009) described language testing as the practice and study of evaluating the proficiency of an individual in using a particular language effectively. Language testing, can also be viewed as a means of measuring the achievement of learners with regard to the educational objectives pre-set for the learners. In the same vein, Wigglesworth (2008) noted that language testing is an educational practice that is designed to measure the level of learners' productive language skills, which ultimately allows the leaner to demonstrate his/her attainment of language ability that may be required in a real world context. Language testing can also be defined as the practice and study of evaluating the proficiency of an individual in pursuing a particular language effectively (Allen, 2009). More so, language testing is also defined as the means of collecting information and pass judgment as it concerns a learner's knowledge of a language and his/her ability to use it (Chapelle and Brindley, 2010). In other words, language testing is a means of determining the level of skills and knowledge that a language learner has acquired after a specified period of learning.

- *Types of language tests*

When classified according to purpose, a test can be a placement, diagnostic, evaluation, progress, accreditation, selection and prediction test. In the area of language testing, English language tests can also be classified in terms of the purpose it will serve. To this end, Alabi and Babatunde (2001) identified three purposes of English language tests, which are:

i. to determine how much have been achieved from a particular English language syllabus; (achievement test falls into this category)

ii. to determine the strength and weaknesses found in students of English language, (diagnostic test is an example here)

iii. to enable the teacher to understand other types of tests (such tests include proficiency and aptitude tests)

The authors also grouped English language tests into: diagnostic, proficiency and aptitude tests.

1. **Diagnostic tests:** This type of test is very essential in determining the strengths and weaknesses of students in understanding certain concepts of the language that is carried out for corrective purposes. Students come from different linguistic backgrounds and there are differences in their ability to acquire different aspect of language during teaching. For instance, some might have problems in the acquisition of certain areas, whereas others may find those areas very easy to acquire. In effect, this will assist the teacher in laying emphasis on the areas of students' weaknesses during the teaching and learning process, so as to mould students that will be conversant in all aspects of the language without being deficient in some areas.

2. **Proficiency tests**: In proficiency tests, the major aim is to establish a test taker's readiness for a particular communicative role (Hamp-Lyons in Foyewa 2015). On the other hand, it is also designed for the purpose of measuring language ability of learners. The author further noted that this kind of test is also used to make predictions about future language performance of the learners and is also required of any Nigeria student planning to study in developed countries like Britain and America.

3. **Aptitude Tests:** Aptitude tests can be broadly defined as tests that are designed to disclose whether or not a student is suitable for a specific type of job or course of training. In a language situation, aptitude tests are used to predict to an extent, the ability of a candidate to succeed in learning a foreign language. Hamp-Lyons in Foyewa (2015) argued that, the predictive value of aptitude test may not be sustained because there may be other factors that may improve the learner's interest and ability to learn a foreign language during the teaching and learning process, such as availability of materials and teachers methodology.

Language tests are also grouped using other paradigms. For instance, Desheng and Varghese (2013) classified English language test broadly into two forms namely: skills test and knowledge test. Various skills of listening, speaking reading and writing and sub-skills which include comprehension, vocabulary, grammar, spelling, punctuation are involved in skill test. However, knowledge test examine students' knowledge in language and includes diagnostic test, achievement test, proficiency test, non-referential test and aptitude test. In the Use of English programme, the end of semester examination is administered to find out what the learner has learnt in relation to the syllabus as well as their readiness for a particular communicative role. Thus, it is both an achievement and a proficiency test. To achieve this, great attention needs to be paid to task types. This means that the topic and task types should be made to reflect test

takers expected performance situations. In other words, the language tasks that learners are expected to carry out in their future jobs should guide test setters with the tasks that they are expected to set for the tests. This is however greatly affected by the tool used for administering test.

Modes of Testing

Basically, there are two tools or modes of testing widely known and used in and around Nigeria. These are paper-based tests and computer-based tests.

- *Paper-based test (PBT)*

The predominant tool for testing students in Nigeria's educational system is the paper-based test. In this mode, students answer questions presented to them using paper and pen (Onyibe, Nwachi-Ikpor and Abdulhakim, 2015). Chua (2012) defined paper-based test as a means through which learners are evaluated through the use of traditional paper and pen approach. Similarly, Adebayo and Abubakar (2014) stated that paper-based test is a process by which a test or an examination is administered through the use of conventional paper and pen mode. In other words, paper-based mode of testing is a method through which students are evaluated using paper and pen/pencil as tools for writing.

Paper-based test which has been the traditional means of conducting assessment is gradually being phased out even globally because of its limitations. According to Alabi (2012), some of the problems of paper-based test that can be controlled by computer based form are as follows: some tiresome processes which includes marking examination scripts manually are often observed in the conduct of paper-based examination which in turn makes PBT time consuming. The issue of subjective scoring and likely manipulation of results, late release of

results and missing scripts and large sum of money that is spent on the examination bodies including honorarium for coordinators, collators, invigilators, markers, and other related staff, among others are all considered.

For the reasons enumerated above, computer-based tests are now becoming widely used in place of paper-based tests. This transition is also partly due to the fact that the national policy on education stipulates that educators have to consider teaching and assessment tool that would permit students to make maximum use of emerging technologies (Fluck, 2009).

- *Computer-Based Test (CBT)*

Computer-based test is a term used to describe the use of computers to administer tests. According to Mubashrah, Tariq, & Shami, (2012) other terms used to describe computer-based test include computer based assessment, computerized assessment, computer assisted testing, online assessment, computer aided assessment, among others. As described by Ogunlade , Itoye, Amosa and Ogunlade (2015) , computer-based test is a means of assessment whereby the candidate sits in front of a computer and the questions are presented on the screen, while the candidate submits the answers through the use of keyboard or mouse. Alabi (2012) also noted that computer based test can be defined as a method of administering tests in which the responses are electronically recorded, assessed, or both. Obioma , Junaid and Ajagun (2013) described computer-based test as the application of technology for the assessment of learning outcomes. In computer-based tests, questions are presented to testees on a computer screen; they are then expected to respond via the computer. The computer also does the job of marking, grading and publishing results. A computer-based test can be delivered through several means. Often, there are two major ways a CBT can be delivered. First is the Local Area Network (LAN) and internet or Web Based Test (WBT) (Ajinaja, 2017).

For the Local Area Network (CBT), some computers are installed in a given area and a CBT server is also set up to link up with only the computers in that designated area. The computers are connected to the servers with the help of cables. And during examinations, questions are transmitted through these cables to the individual computers in the hall.

Internet and computers are often developing hand in hand in terms of technological advancement. In the same vein, the internet or web-based computer based test is the most popular form of computer based tests. The web-based testing (WBT) uses the internet as a platform for test development and delivery. In this form of testing, test input and questions are written in HTML and hosted on a server and test takers respond to the test items using web browsers such as Internet Explorer, Firefox, Chrome, or Safari (Shin, 2012). Long, Shin, Geeslin and Willis (2018) noted that recently, WBT has been embraced more by language researchers and teachers. This is because it has what it takes to improve the logistical efficiency and flexibility of a language test (Ockey, 2009). In other words, test developers can easily upload and update test contents; and test takers can also take the test at the place and time of their convenience. Again, test takers' responses on the test are scored immediately, and scores are reported to all stakeholders more quickly. Since information from WBT are stored online, item and test score statistics can be made readily available on demand, thus making available useful information for test developers and users to interpret test scores and revise the test when necessary.

Additionally, WBT has been acknowledged as having the ability to improve a test's measurement qualities, that is, a test's reliability and validity (Chapelle &Douglas, 2006). Even if the number of test takers is large, WBT systems allows for their answers to questions that are in true/false or multiple-choice formats to be immediately scored without any errors. Researchers

have also found that even questions that require productive responses/answers can be scored very well once reliable scoring algorithms are developed and applied to test takers' responses (Bernstein, Van Moere, & Cheng, 2010; Carr & Xi, 2010). Further, inter- and intra-rater reliability in assessing test takers' written or spoken responses is not a concern in Web based language testing since it uses an automated scoring system (Williamson, Bejar, & Sax, 2004). Computer technology also makes it possible to include visual input for online listening tests. This is unarguably more closely reflecting how language is used in real-world tasks (Ockey, 2007; Wagner, 2010). Web-based CBT is also becoming more widely used in many high-stakes standardized language proficiency examinations. Example of web based CBT includes the Test of English as a Foreign Language Internet-based Test (TOEFL iBT) and the Pearson Test of English Academic (PTE Academic). WBT is also very much used in placement and screening tests used for medium-stakes decisions made in FL programs (Bardovi-Harlig & Shin, 2014; Elder & Randow, 2008). Not minding the means of administration, a computer-based test like other tests must provide some amount of information about a test taker's ability in a given knowledge area. This information is loosely referred to as the test scores (Champlain, 2010). Generally, there are two types of computer-based tests. These are linear and adaptive computer based tests (Ajinaja, 2017).

Linear computer based tests are tests in which all the examinees answer the same set of questions. Affirming this, Alabi (2012) stated that a linear computer based test is that which presets the same type/number of questions to every examinee. The author further noted that most linear-computer-based tests are modeled after the paper-based tests they are used to replace. Since all the candidates write the same questions, the tendency is that some candidates are given questions which are either very easy or very difficult depending on their ability levels. This goes

to show that linear tests provide relatively little information about the examinee's real ability level (TeamCode, 2010). This is why adaptive computer-based tests are now more widely preferred and administered.

In adaptive computer based tests however, each candidate is given questions that are at the right level of difficulty for his or her ability. These questions are taken from a very large pool of possible questions categorized by content and difficulty. This type of test often begins with a question that is of medium level of difficulty for most test takers. As the test progresses, the computer selects the kind of question a candidate will answer next. This next question is determined by his/her performance in the preceding question. This means that different test takers in the same examination room get different questions and these questions are given to them according to their abilities. Owing to the fact that in adaptive testing, questions are given to each student according to his/her performance on previous questions, one spends less time than one would have spent on a paper-based test or linear computer-based test questions. In linear test types, the questions are either too easy or too hard, and if one makes a careless error one may answer incorrectly or if one makes a lucky guess, one may answer correctly. However, in adaptive tests, if one makes a guess and answers correctly, the questions one may later receive may not be appropriate to his or her knowledge or skill level. The advantages adaptive tests holds over linear tests is that it requires fewer test items to arrive at a more accurate estimate of test-takers' proficiency. Again, it allows test-takers to receive immediate feedback on their performance, Furthermore, since each test-taker is administered a different set of test questions it enhances the test's security by controlling the level of item exposure within a test or across tests. More so, scoring in adaptive tests takes into account not just the number of questions answered correctly, but which items were answered correctly. Hence, a test-taker who correctly answers a

more difficult set of questions will score higher than a test-taker who correctly answers an easier set of questions.

No matter the format of the computer-based test, the undisputable fact is that computer-based tests offer several benefits to the test administration process in education. In relation to paper-based test, Olawale and Shafi (2010) noted that CBT has become the preferred means of assessing students in Nigeria in place of manual or paper method because the latter was characterized by massive impersonations, examination leakages, among others. Abubakar and Adebayo (2014) states that the Joint Admission and Matriculation Board (JAMB) introduced the computer-based testing (CBT) with the objective of eliminating all forms of examination malpractices and promoting the use of electronic testing in Nigeria. CBT is also preferred for its ability to reduce preparation time and cost, enhance test security, fast result analysis, record keeping for item analysis and reliability of scoring (Garas and Hasan, 2018). Further, Mubashrah (2012) argues that computer-based test presents powerful tools that facilitate the record of a wider range of knowledge and cognitive skills. The benefits of computer-based tests can be summarized as follows:

1. Computer-based tests are cost effective especially for examinations of large number of candidates. This is because they eliminates the cost of printing and cut down on the amount of physical invigilators needed to supervise the examination.

2. Computer-based tests require lesser task from examiners, for instance the computer marks and scores each candidate and thus enhances fast release of results.

3. In computer-based tests, human errors in marking can be eliminated since computers do the job of script marking.

4. Paper-based tests often require lengthy completion hours; but CBTs can be completed in relatively short time. This helps to reduce examination time.

5. Computer-based tests also reduce the menace of impersonation since it usually requires, finger print authentication as well as passport photographs of examinees before they can sit for examinations.

6. It also curbs malpractices since everyone minds his/her own system and most times, question types are randomized and no candidate has the same set of questions as the other.

- *Computer-Based Language Testing (CBLT)*

Just like computer-based tests, computer-based language testing is also referred to as computer-assisted language testing. Computer-assisted language testing (CALT) uses computer applications for getting and making valued judgments on test takers' performance in a second language. Computer-based language tests can take the form of linear or adaptive tests. It is important to state that one of the first large-scale computerized-adaptive testing programs to go operational was in 1985 and consisted of four tests namely: Reading Comprehension, Sentence Skills, Arithmetic, and Elementary Algebra (Luecht and Sireci, 2011). It follows that the first ever adaptive computer-based test was developed for the purpose of language testing and then mathematics. A valid and reliable CALT makes use of computer-adaptive testing (CAT), uses multimedia in test tasks, and automatic response analysis. There are three main objectives for using technology in language testing. These as outlined in Chapelle (2010) are: efficiency, equivalence, and innovation.

Efficiency lies in the power of the test to assess the skills of the language in context and still return result as fast as possible. Equivalence focuses on making computerized tests equivalent to paper and pencil tests while innovation, that is the ability of a technology to create a true transformation of language testing, lies in the reformation of the concept of second language ability construct in CALT as the ability to select and deploy appropriate language through the technologies that are appropriate for a situation. Additionally, innovation of CALT is also evident in its adaptive approach to test design and automatic intelligent feedback made possible with the help of automatic writing evaluation (AWE) and automatic speech evaluation (ASE).

Computer testing technology has immensely influenced language testing. In testing oral English for instance, the prevalent means was through the use of multiple choice objective test in which candidates are expected to recognize and produce all the significant sound contrasts in the consonants, vowel, and in unstressed syllables in words which are otherwise distinguished. The candidates are also tested on their knowledge of intonation patterns and functions of intonation. Egirindu (2009) however noted that this way of testing oral English can be improved upon by intensifying efforts in the application of ICT tools and techniques in assessment procedures. One of the greatest tools of ICT in this regard is the Computer-based test. Most advanced CBT software allow for automated speech analysis which enables the recording of candidates' authentic speeches and thus gives a more valid evidence of his/her oral proficiency.

Reading comprehension tests are often designed to assess a candidate's knowledge and understanding of written discourse. According to Ockey (2009), in assessing reading, students are usually meant to read a passage or passages and then respond to matching tasks, multiple choice questions or give short answers. CBT technology offers several experimental question

types which are not only clearer indications that CBT is a more suitable tool for tracing reading ability. These tools include: reorganization, insertion and word deletion (Jamieson, 2005).

For reorganization task types, students are expected to make a logical story by placing sentences in correct order. These sentences can be moved around just by clicking on them. The insertion question type is the one that capitalizes on the potential of CBT for rapid and accurate scoring of a number of possible correct answers. Here, candidates are required to read a disjointed text and click on areas in the sentences that a missing word should be placed. If the computer recognizes that a word is truly missing there, a dialog box pops up requesting the candidate to fill in the missing word. The scoring pattern or algorithm is designed in such a way that it will accept any word that is plausibly capable of filling in that space, this is because it was designed based on human judgment. Lastly is the word deletion question type which requires candidates to indicate the words in the sentences of a text that should be deleted. When the choices had been made, the whole sentences are rearranged according to the candidate's selection. The candidates are allowed to keep rearranging their selections until they click submit.

Another important area in language testing is grammar. Grammar tests are often designed to measure students' capability in matters such as inflection patterns (word) and sentence patterns (syntax). Although knowledge of grammar can be tested using completion items, transformation items, paraphrase, rearrangement, editing, combination, addition and items involving the changing of words, completion items are often used in computer based tests. There are three basic forms of the completion grammar tests. These are the option form, the inflection form and the free response form (Ijaz, 2014). In the option form, students are given a couple of sentences and asked to complete them using the correct options. The inflection type is often made for assessing the knowledge of inflection a learner has. Questions vary from simple

inflections such as “tall, ____, tallest” to verb tenses such as “Ada ____ food every morning”. The free response form is used to show knowledge of the usage of every day terminologies such as question tags.

For assessing writing, Li, Link and Hegelheimer (2015) states that CBLTs utilize automated writing evaluation (AWE). However, of all the skills and sub-skills of English measured using computer, writing skill remains an issue of major concern. There are two methods for assessing writing. These are: indirect method and direct method (Anisa, 2014). Through the use of multiple choice objective questions, indirect method measures knowledge of key elements in writing and conventions of English usage. The direct method on the other hand measures students’ ability to communicate in writing through production of text with a specific theme. In directing testing, students must find appropriate ways to organize ideas, deliver content and use vocabulary, grammar and syntax conventions accordingly (Hubley in Anisa 2014). With the advent of computer-based tests, concerns that writing skill will no longer be appropriately measured rose tremendously. The first fear was that computer-based tests will not provide platforms to get written text responses. This fear was treated with the advent of automated writing analysis scoring system and an advancement to better CBT softwares. Nevertheless, it is difficult to dispel the fear that computers cannot appreciate the value of essays like human raters. This is because, efficient writing skills have affections and meanings attached to it that can be cherished by humans. Abubakar and Adebayo (2014) reiterated that effective writing is based on organization, accuracy, sophistication of vocabulary and many other similar aspects that current computer systems cannot evaluate. Ericsson (2006) is of the view that the method used in machine scoring which examines contents to the extent to which it has factors common to some notions created by the developers, is entirely backward when it comes to the

idea of meaningful writing. According to Coniam (2006), computers do not in any conceivable manner actually read a text thus computers simply act in response to words and their association with each other, with no knowledge of the ideas and concepts that connect the words in significant ways.

- *The Use of English computer-based test in Universities in Nigeria*

Conducting Use of English computer-based tests in federal universities in Nigeria seems to have a predictable pattern. From Agbo and Agbo (2019), it was gathered that to administer Use of English CBT examination, the Universities first set up a Local Area Network (LAN). In this area, there will be a central computer and several other computers technically referred to as "clients". The client is connected to the server using one or more switches. The clients are not just connected directly to the server, they are first connected to the switch or switches, and from the switches; they are connected to central server. In other words, every computer or laptop in the LAN must be connected directly to a switch but not directly to a central CBT server.

When this has been done, the CBT server software and client software developed using what is known as Component Based Software Engineering (CBSE) is now installed inside the server and the clients respectively. This is what essentially makes them a server or a client. The CBT server is where questions are supplied or fed to the computers and stored for later use while the client is responsible for relaying the test questions to the candidates.

The Use of English examination often has 70 multiple choice questions, composed mainly of grammar related questions and questions from the books the lecturers have recommemded to the students for the semester. Before the examination, lecturers of Use of English are required to supply these questions with their corresponding answers to the office of

the Director of the ICT department, who will in turn assign an ICT personnel known as the test administrator to upload these questions and their answers into the CBT server. For getting the clients ready, the technical crew comprising ICT staff deployed by the Director of ICT connects each client to the server by launching a browser such as Mozilla, Safari, Chrome or Explorer and typing on the browser the examination pathname such as “schoolname.useofenglish.cbt”. Once the technical staff clicks ‘enter key’ the authentication screen containing fields where the candidates will fill their username and password will pop-up showing that they have been connected to the server. The same process will be repeated on each of the clients.

Next, students of The Use of English are called into the hall and each student is required to perform the authentication process. This means that when they come in, they type in their username and passwords which are usually their registration numbers. The server will only recognize the student if he/she had done an online registration of the course. This is because; it is from there that the “classlist” of those qualified to take the examination is preloaded into the server. After the authentication, the server will supply the candidates the examination questions. The students are said to be then browsing through the examination. The questions appear randomly for each student and thus no two candidates get the same set of questions. As the questions are being answered, the server is recording it. At the bottom right of the screen are round shaped number bullets containing the question numbers and an arrow pointing either forward or backward. These are what help the candidate navigate to and fro the different windows that contain questions of the exam.

The Use of English CBT is usually 30 minutes and once it reaches 00.0seconds, it automatically logs off the user. Once the candidate logs in, the time starts counting downwards for him/her. And once it starts counting, no one can stop it. Only the administrator through the

mandate from the lecturer in-charge and Director of ICT can allocate extra time to a client if the user experienced any form of issues. However, if the candidate finishes before the time, there is a 'submit' button for him/her to click. When this button is pressed, the server will ask the user some questions such as, 'are you sure you want to end this examination?". If the user answers in the affirmative, the examination window is closed and the server greets him/her with a word like "congratulations!, you have successfully completed your Use of English examination". The results are however not automatically showed to the students. It is uploaded to their different university profiles for viewing at a later date.

From the foregoing, it can be said that the Use of English examinations in south eastern Universities is a Local Area Network (LAN) semi-adaptive computer based test. It is a LAN CBT because the setting is such that there is a dedicated hall or halls where a number of desktop or laptop computers known as clients are connected to a server in the same location for the sake of the examination. It is also semi adaptive because just like in adaptive tests, the question numbers presented to each candidate is unique to that candidate and is not linear like in paper-based tests. However, the examinees response is not a determinant of the subsequent questions he/she will be given while browsing through the examination.

Suitability of Computer-Based Test in the Use of English Examinations

Suitability has to do with the extent to which something is proper for a given situation. Reverso (2017) described suitability as the situation where someone or something is appropriate for a particular purpose and therefore acceptable for it. In the context of testing, factors that indicate the suitability of the test may include appropriateness of the test items to course objectives, students' perception, equipment, and other technical issues directly related to the test.

However, from the discussion on Use of English computer based tests in the preceding subheading, it can be deduced that no special considerations are made to ensure that the skills emphasized in the use of English programme are appropriately tested. The same objective test items are administered across board for testing reading comprehension, grammar and speaking. The implications are that appropriate item types for testing these skills may not be administered, and this may not be appropriate for testing some of these skills. Again, since the test contains only 70 questions to be completed in 30 minutes, the chances are that not all the skills taught in the course will be tested, but a suitable language test must be comprehensive and that the time may be too short to complete the test and this may force the test scores to be measures of speed and not proficiency in the language. Ultimately, the transition to CBT may become worse than paper-based Use of English language testing.

Suitability of computer-based tests for Use of English examinations can also be affected by how students perceive it. Perception has to do with the manner of judgment ascribed to a particular thing. These perceptions are what shape peoples' reactions or behaviours towards that thing. In the same vein, students perceptions are an important determinant of their behaviour towards any activity in the school environment. According to Jimmoh, Abduljaleel and Kawu (2012), students' attitudes and feelings towards a test is an important factor in test design. Hence, if negative attitudes and feelings are ignored, they may have adverse effects on test scores. Researchers agree that the knowledge of the way the students think and perceive events in the teaching and learning process can aid the teacher to reinvent and adjust his/her teaching strategies to enhance students' understanding and achievement (Abiola, 2013; Ibrahim and Callaway, 2014; Bashir, Alias, Saleh, and Awang 2017). Thus, it is very important to gain an understanding of the perceptions of the students because they will be highly useful for explaining

students' behaviour. Most times, students are concerned about how testing tools can affect their grade, whether it is convenient, whether it is relevant to the content of the course and its relevance to their future. In the case of CBT, technical issues relating to mouse control, font size, screen resolution, screen brightness, window slide technique, as well as element of adaptive-test delivery can also affect students' perception.

In the light of Unified Theory of Acceptance and Use of Technology, four constructs are responsible for students' perceptions of and behaviour towards any technology (Venkatesh, Davis, Davis and Morris, 2003). These constructs include performance expectancy which relates to whether the students perceive the use of CBT as being instrumental to their success in the Use of English programme, effort expectancy which talks about the amount of effort in and knowledge of computer that the students have to possess before they can take the examination without having issues, social influence which relates to whether the use of CBT has a social value for the students and lastly, facilitating conditions which have to do with the extent to which the students believe that the infrastructure on ground in their schools is good enough for carrying out computer-based test.

Similarly, the success of computer-based tests as a tool for use of English language testing can also be daunted by issues relating to infrastructure. This type of challenges is evidenced in issues such as examination venues, network related issues, cost of equipment, and electricity.

Use of English is a university wide course, therefore, the over 10,000 students admitted into the university sits for the examination yearly. This puts in perspective the need for universities to have at least ten CBT centres with up to 1000 functional computers if the examination is to be conducted smoothly. To do this requires funding and it has been observed

that investment in technologies remains a less financial priority in most tertiary institutions in Nigeria (Ajinaja, 2017). This is often attributed to economic challenges. Evoh (2007) noted that most tertiary institutions in Nigeria lack the resources for the sustainable integration of technologies in education. This according to the author has made it difficult for Nigerian educational institutions to purchase and install equipment necessary for the utilization of computer based testing method. Therefore, it is important that government budgets considerable amount of money to education so as to enable the adoption of computer-based test in many institutions.

Moreover, the menace of epileptic supply of electricity in many parts of Nigeria is also a big challenge to the adoption of computer based tests in many institutions. Electricity challenge is prevalent nationwide and constitutes the bottleneck to effective countrywide deployment of Information and communication technology as a tool for assessment. In the view of Aduwa-Ogiegbaen and Iyamu (2015) computer-based test may be difficult to manage in Nigeria because of poor provision of electricity needed for powering the computer systems and networks.

The use of CBT is also dependent on the skill possessed by those saddled with the responsibility of overseeing these tests. In the case of Use of English, the software engineers from ICT unit readily come to mind. According to Haider (2017), test engineers typically have a natural aptitude in mathematics and science, and also enjoy working with computers and electronics. In terms of behaviour, test engineers should enjoy using their skills in engineering to identify and solve technical problems. For instance, installing and maintaining appropriate CBT software that will enable appropriate language testing depends on the programming skills possessed by the ICT staff. Troubleshooting the computers when issues arise is also the responsibility of these members of staff. Olawale and Shafi'i (2010) argue that computer-based

tests pose a huge security threat because, a candidate may contract a person who can login with his/her credentials and write for him/her. This is often because in computer based tests, candidates are not required to do any other form of authentication except entering their registration numbers. In computer based tests, there may also be a higher risk of cheating, through hacking of the database where the items are stored, leading to risk of total loss or mutilation of results (Olumorin, 2013). Protecting against such occurrences is made possible only by a pool of highly skilled technical personnel.

It is important that those whose responsibility it is to handle any issue relating to the use of these CBTs have domain knowledge of the software they are working on. Furthermore, they also need to be proactive thinkers so that they can proffer solutions to unforeseen technical issues during the test such as unexpected bugs. Kaur (2016) stated that as far as software testing is concerned, engineers need to have: knowledge of certain programming languages such as Selenium, PHP, HTML and JAVA as they are the mostly used programming languages for developing CBT software systems; knowledge of an effective bug-tracking tool such as JIRA which is an indispensable tool for tracking issues such as system crash, accidental time-out, unauthorized access into the item bank sub-system; version control systems such as Git and SVN, these aids in making the examination accessible to every client regardless of the windows version it is operating with; basic SQL commands that will help in the management of the CBT server where everything is stored.

Schematic Representation of the Conceptual Framework

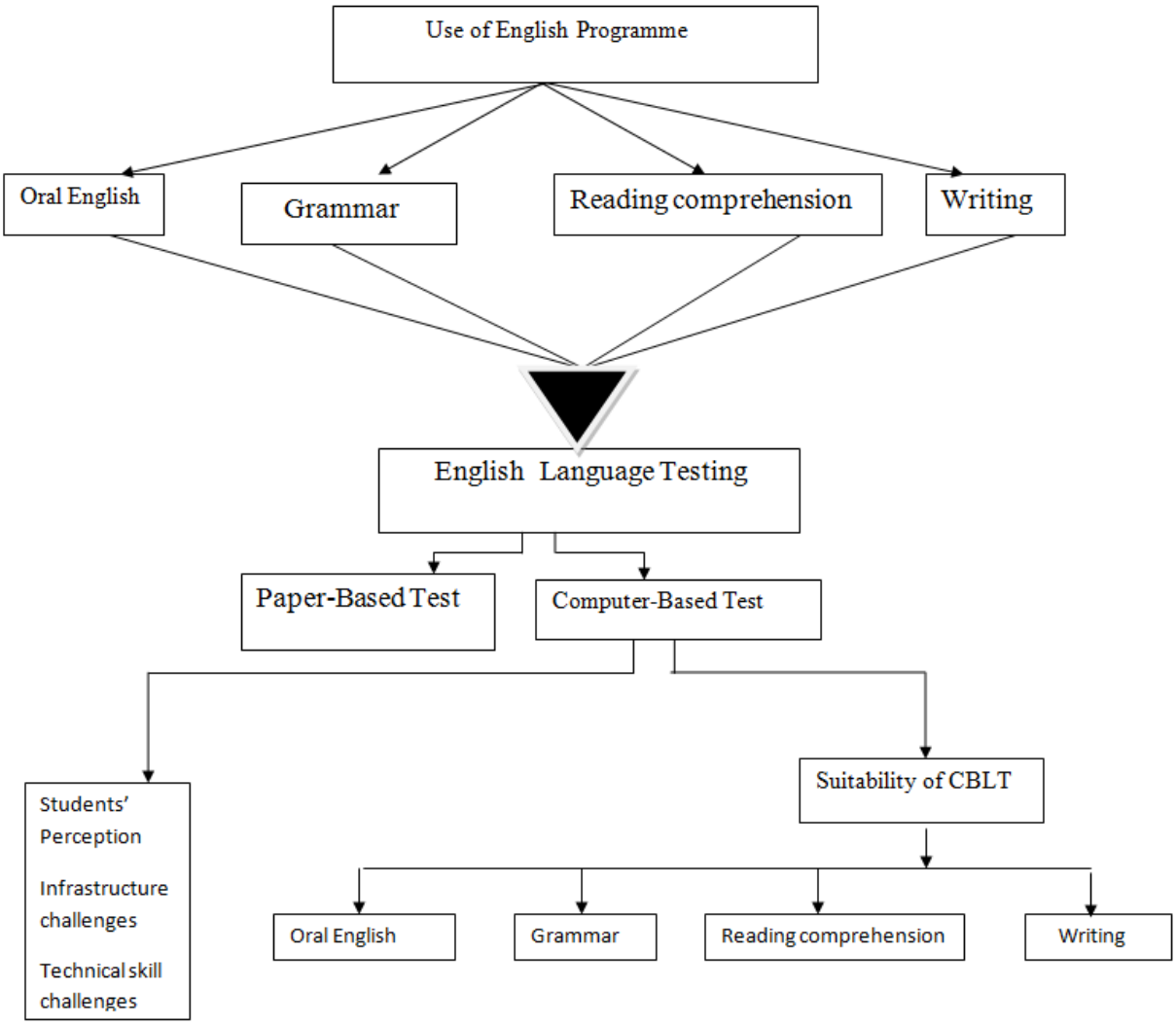

Fig I: A Schema of the Conceptual Framework

Figure I above shows the relationship among the concepts in the study. Firstly, the figure broadly shows the four language skills taught in the Use of English programme. The figure goes further to show that in testing these skills, two tools have been predominantly used in Nigerian universities. These are paper-based and computer-based tests. However, the latter has a more

recent history. The figure shows that computer-based language test is validated only by its suitability. This suitability is gauged in relation with how it is used to test knowledge of oral English, grammar, reading comprehension and writing. Concepts such as perception, infrastructure and technical skill are also important concepts in this study. However, they are more directly related to computer-based tests in general not just computer-based language tests.

Theoretical Framework

Under this sub-heading, theories that this study is anchored on were discussed. The basic tenets of these theories were also discussed and their point(s) of relationship with this study were also explained. These theories include: SECTIONS model of technology selection and Unified Theory of Acceptance and Use of Technology (UTAUT).

SECTIONS Model of Technology Selection

In explaining the process and considerations necessary for the selection of any technology in/for education, Anthony Bates and Gary Poole in 2003 put forward the SECTIONS Model of Technology Selection. This model was first developed by Bates in 1995. During this period, the model was known as the ACTIONS model. The ACTIONS model which stands for access, cost, teaching and learning, interactivity, organization, novelty and speed was developed to guide the inclusion of technology for distance education. However, it was not long before it came under heavy criticism for focusing only on distant learning situations, forgetting that technologies are also used in the conventional classrooms of higher institutions. Again, the ACTIONS model also leaves out the student factor which must be considered in/for every teaching and learning decision. In view of these, the SECTIONS model was born in 2003 this time by Anthony Bates and Gary Poole. The researcher chose to use the 2003 model for it embodies a better explanation to factors pertinent to this study such as student perception,

appropriateness to course objectives as well as institutional readiness. The SECTIONS model stands for:

S-Students

E-Ease of use and reliability

C-Costs

T-Teaching and learning

I-Interactivity

O-Organizational issues

N-Novelty

S-Speed

From the initial stage, this model was put forward in order to assist in the process of decision making as it concerns choosing technology that will be used at both the strategic and the tactical levels, and also to facilitate choosing within a particular technology the most appropriate balance between different media. According to Bates and Poole (2003), the strategic decisions are institution wide while the tactile and second level decisions are course specific and can be decided by the teachers. In other words, an institution may decide to introduce a new technology; however the version of the technology and other modifications are to be done by teachers bearing the specific course content in mind. The levels notwithstanding, educators need a theoretical framework that will guide them in making decisions about the type of media and technology they adopt as this will go a long way in curbing the menace of adopting inappropriate technologies all in a bid to keep up with trends in development. This model was of paramount importance to this study. The model provided a detailed specification on the kinds of considerations to be made for adopting technology as it relates to students, teaching functions,

cost, interaction and organization. And these were the variables outlined by the researcher for studying the suitability of computer-based tests for Use of English on-campus examinations.

For the students, the theory proposes that at least three issues should be considered. These include their demographic information (do they have an existing knowledge of the technology?), access to the new technology (can they afford it or will the institution provide adequate aid) and learning differences (are they visual or tactile learners?). For teaching and learning, Bates and Poole (2003) posit that if a technology is educationally irrelevant, that is, it does not support the goals of what it is used for, then it should not be used no matter how cheap or easy it comes. According to them, every learning venture has a list of content as well as skills which it intends to inculcate to learners and part of course designs is to match these requirements. Coming to ease of use, the theory presupposes that students of computer science or engineering and other sub-disciplines that require the use of computer as a course material may likely find the use of computer technology in education less difficult. Same may not be said for students from disciplines such as History and English language. If the technology is to remain, a great deal of time has to be dedicated to understanding it and this will ultimately distract from teaching and learning (Bates and Poole, 2003). Thus, the ease of use of a technology depends on the orientation of the software and the friendliness of its interface.

In the area of cost, the model makes a distinction between individual items of expenditure cost and drivers cost. Individual items of expenditure include cost of purchasing equipment and that of the programmer who helps to develop and maintain the software while the drivers of costs includes the cost of delivering media within the technology. In the area of interaction, it is believed that since most theories of learning support that for learning to be effective, learners need to be active and so; technologies must provide avenues for learners to be active and not passive. Similarly, testing technologies such as CBT must be made to incorporate

items that allow learners to demonstrate knowledge and not simply relay yes/no item types. The organizational issues include that of providing enough physical space for technologies as well as laying on ground the technical requirements needed to use a technology. Hence, this model was highly useful for studying variables of students' perception, suitability to course objective, infrastructural and technical skill challenges which are of paramount importance to the present study.

Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology **(**UTAUT) was formulated in 2003 after Venkatesh Viswanath, Davis Fred, Davis Gordon and Morris Michael empirically compared eight earlier models of information technology (IT) acceptance and use. These models include Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behaviour (TPB), Combined TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). According to Venkatesh et al. (2003), technology acceptance researchers are constantly faced with making a choice among a multitude of models but usually find out that they must "pick and choose" constructs across the models, or choose a "favoured model" and largely ignore the contributions from other models. Thus, "there is a need for a review and synthesis in order to progress toward a unified view of user acceptance" (Venkatesh et al, 2003 p. 426). Integrating elements across the earlier models, UTAUT proposes that users acceptance of a technology is a function of four constructs namely: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC).

Performance expectancy is seen as the degree to which an individual believes that using the system will help him or her to attain greater heights in terms of performance, while effort

expectancy is regarded as the degree of ease associated with the use of the system. It is believed that users will be more inclined to use a technology if they find it relatively easy to use and not laborious. Social influence is talked about here as the extent to which an individual perceives that it is important to others that he or she uses the new system. Lastly, facilitating conditions has to do with the level to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. The first three constructs are direct determinants of usage intention and behaviour, while the fourth is a direct determinant of user behaviour. In other words, while PE, EE and SI relates directly to the technology in question in terms of what it can offer to the user or intended outcomes of usage, FC has to do with the user's physical environment. Further, gender, age, experience, and voluntariness of use are posited to moderate the impact of the four key constructs on usage intention and behaviour.

In relation to the present study, this theory was very important for it had useful applications in understanding how learners behave towards a new technology. UTAUT proposes that users behaviour towards a new technology is as a result of its perceived usefulness in improving performance, ease of use, and social influence. This fact demonstrates that students' perception as already outlined in the present study, is an important factor for determining the suitability of a technology. Furthermore, the theory also postulates that facilitating conditions (FC) is an important factor as far as technology use is concerned. This provided a theoretical backdrop for studying infrastructural and technical-skill related challenges in the Use of English computer-based tests. The findings of this study ultimately showed that the propositions made in these theories about these variables were true.

Schematic Representation of the Theoretical Framework

The figure below represents the relationship shared by the theories discussed above and the main concepts in this study.

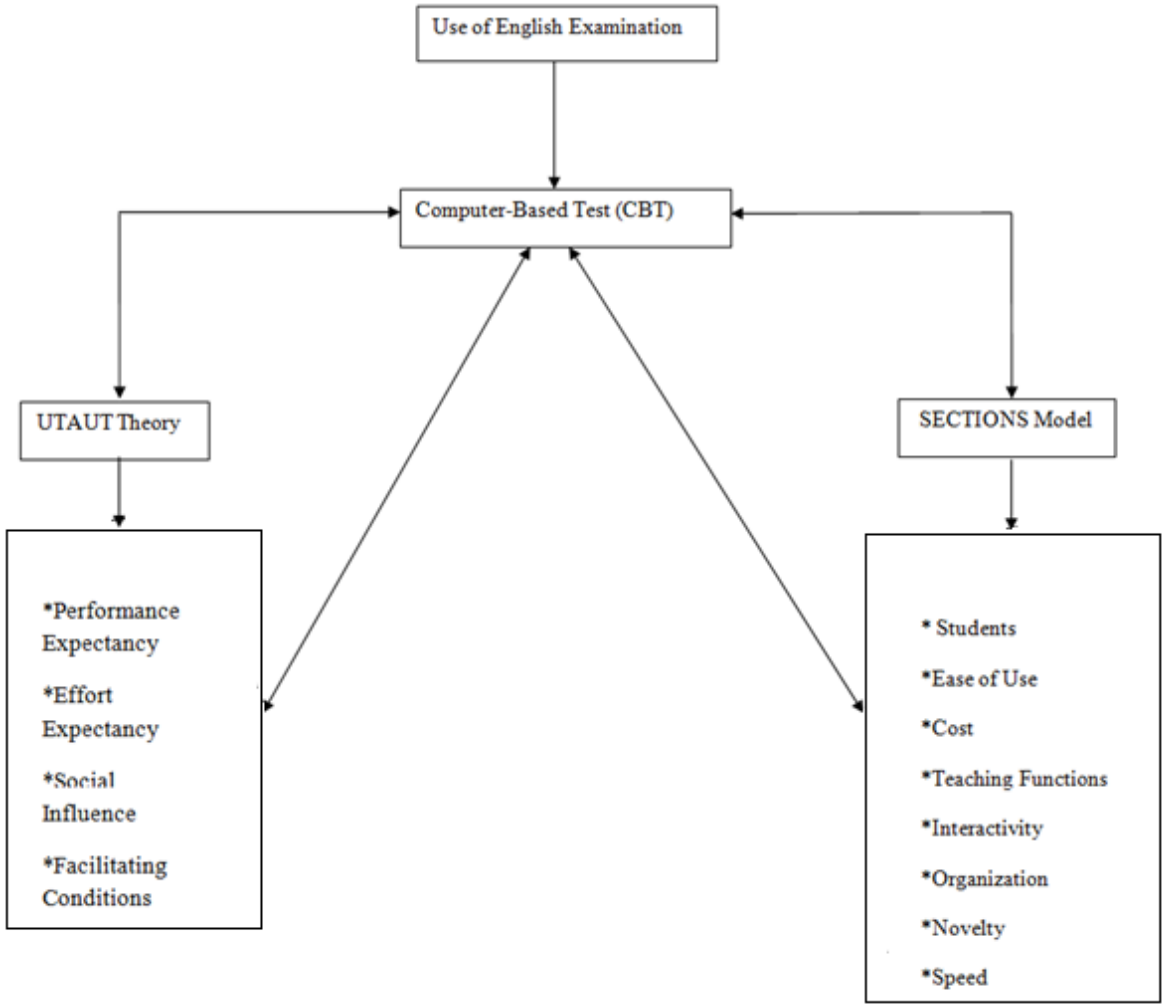

Fig 2: Schema of the Theoretical Framework

From the figure above, it is clear that the SECTIONS model proposes eight constructs upon which every selection of technology in education must be weighed. These constructs include: Students, Ease of Use, Cost, Teaching functions, Interactivity, Organization, Novelty

and Speed. The present research has a strong connection with the specifications of this theory especially as it concerns these constructs. For instance, the theory proposes that the teaching functions, that is, objectives for a subject, must be adequately captured by the new technology. If not, the technology may be judged as unsuitable for the said context.

The figure also shows that UTAUT theory puts forward four constructs upon which students' views on a new technology can be studied. This is a major point of relationship of the theory and the present study as the present study intends to find out students' perception of CBT. The UTAUT theory proposes Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions as major constructs that influence students' belief in a technology.

Empirical Studies

In this section, studies relating to the present study are reviewed under the following subheadings:

- Studies on English and Computer-Based Test
- Studies on Oral English and Computer-Based Test
- Studies on Reading Comprehension and Computer-Based Test
- Studies on Grammar and Computer-Based Test
- Studies on Writing and Computer-Based Test
- Studies on Students' Perception of Computer-Based Test
- Studies on Challenges in using Computer-Based Test

Studies on English and Computer-Based Test

As computer-based tests became widely accepted for language tests, researchers also became widely interested in studying about it. Vallance (2003) investigated the Use of computers in English language testing. The major purpose of the study was to provide information about the use of CBT in high stake and low stake English examinations. Basically, Vallance discussed the functions of English language tests and the effects electronic variants of English test such as CBT may have on these functions. The author further gave an explanation of what adaptive testing entails for high stakes and low stakes examinations. The researcher concluded that electronic testing can go a long way in not only improving test scores validity, but will help learners develop an inductive and independent approach to learning. The researcher also predicted that CBT was going to become a major medium of test delivery to the more digitally literate population of the 21st century. The study also concluded that a constant use of computers in the classroom if students are to give CBT their best shot. This study is related to the present study for the fact that they are both interested in studying computer based test as it concerns English language testing. However, while this study was an opinion paper, the present research was an empirical study.

Al-amri (2008) also explored the comparability of paper and computer-based testing modes in a second language reading situation. The author also considered the influence characteristics of students such as knowledge or familiarity with computer, attitude towards computer, preference for either PBT and CBT and strategies of taking test exerts on students' performance in computer and paper based tests. The area of the study was Saudi Arabia and the sample for the study was made up of 167 medical students. The study employed triangulation

and as such qualitative and quantitative data were gathered for the study. The result of the study showed all the factors examined did not have any impact on the performance of student during computer-based tests. However, there was a statistically significant difference in the mean scores of students on the PBT and CBT. This study is related to the present study because they both studied computer-based test for testing reading. However, while the present study focused on suitability, the study under review was more interested in performance. Furthermore, the present study is not interested in comparing computer-based test and paper-based test.

Immediately after the first ever Unified Tertiary Education Examination (UTME) computer-based test examination, Saani & Mohammad (2015) assessed the quality of the examination using student's perception as a yardstick. Specifically, the researchers sought to unravel the nature of problems students encountered during the test and suggest prospective methods that could be used to enhance CBT acceptance in Nigeria. The study adopted survey research design. a sample of 300 students who wrote UTME at Ahmadu Bello University, Zaria were selected for the study. Out of the 300 questionnaires administered, 237 were adequately completed. From the findings, it was clear that the respondents agreed that CBT can be used to mitigate examination malpractice. The results also showed that most of the candidates preferred the CBT mode to the traditional mode of testing. Using Chisquare and Pearson's correlation analysis, it was revealed that the students' preference for CBT was sensitive across gender, age distribution and the faculty of the students. Poor ICT skill possessed by students and the invigilators were noted as the greatest problem that will hinder the implementation of UTME/CBT, while improving electricity supply was also identified as being a crucial part of enhancing the UTME/CBT examination. From their findings, the researchers recommended that JAMB needs to create more awareness on CBT as this will go a long way in enhancing the

examination. In relation to the present study, this study also studies CBT and the challenges encountered when using it for large scale examinations. However, the present study was done in South East Nigeria and concentrated on using CBT to test English language.

Studies on Oral English and Computer-Based Test

In the past, some researchers have investigated the use of computer-based test to examine oral English. One of such studies is the one by Yu and Lowe (2009). They carried out a study titled "Computer assisted testing of spoken English: A study of the Shanghai Foreign Language Education Press (SFLEP) college English oral test system in China". The study was used as a report for an evaluation of a computer-based system known as College English Oral Test System (CEOTS) that was in progress at the time. CEOTS was used for the assessment of spoken English skills among Chinese university students. The study was guided by three research questions. It was also carried out using survey research design. Data was collected on a sample of University students using questionnaire. Follow-up interview and further interviews were held with English language teachers, to gauge their reactions to the test and its impact on language learning. The researchers identified validity as one of the key issues affecting Use of computer based test for testing speaking. Particularly, they noted a strain inherent in the relationship between the construct and consequential validities of the already existing method and that of CEOTS. Thus, they argued that although a the CEOTS method evidently provides an indispensable way out to the menace of negative backwash problem presented by face-to-face testing, the fact that to development and advance to the level of technology needed to reach the present day construct validity demands will make this shift a very long term prospect. Consequently Yu and Lowe (2009) suggested before an oral proficiency computer-based testing system that will be similar to paper-based version in terms of interactivity level can be developed

and used; a concession amid the opposing forms of validity must therefore be established. In relation to the present study Yu and Lowe's study studied the use of computer-assisted English speaking tests, particularly with regard to the promotion of oral English. They are also related in the research design adopted and instruments for data collection. Nevertheless, the two studies differ in the areas of the study. In addition, the suitability of CBT for other language skills was also established in the present study.

Another study was carried out by Grigorieva, Ismagilova and Solodkova (2016). The study was a comparative analysis of oral and computer-based types of assessment in teaching English for students of economics, business and finance. The study was done in order to find out the best assessment that will be suitable to the establishment purposes of higher education and also potentials of students. The population of the study was 831 300 level students of institutes of Finance, Economics and Management. From the population, a sample of 105 students was purposively selected. This was done according to their gender (male and female) cognitive levels, achievement scores in language proficiency examination, computer literacy. In addition, 25 members of teaching staff that conducted the English examination taken by the students were also sampled. Data on the attitude of the lecturers based on their personal experiences was got through an interview. A 5 item questionnaire was administered on the students. From the responses to the questionnaire items, it was found that students did not have a preference when it comes to assessment mode. Only a little inclination to use both modes was found. Consequently, authors came to the conclusion that the two modes of assessment (CBT and oral types) should continue to be used during assessments for it ensures that the needs of higher educational establishments are adequately responded to and also takes care of students' different preferences and potentials. This study and the present study are related because both emphasized the

usefulness of testing oral language in a real oral context. However, the population of the present study was larger and thus evidence from it is more generalized.

Okoli, Ubangha and Egberongbe (2018) carried out a study on the impact of computer-based testing modes on academic achievement among senior secondary school students in Abuja, Nigeria. The main purpose of the study was to investigate the effects of Computer-Multimedia Test (CMT) and Randomized Computer-Based Test (RCBT) on academic achievement of senior secondary students. The study was guided by five research questions and two null hypotheses. The study adopted a quasi-experimental research design. the area of the study was Abuja, Nigeria. The population was made up of all SS3 students that wrote Senior School Certificate Examination and Unified Tertiary Matriculation Examinations in the area of the study. The sampling of the study was selected using multi-stage sampling. First, three Local Education Authorities were selected, and then nine secondary schools and the three hundred and thirty-five (335) students were selected. Three schools each out of the nine schools selected were randomly placed into CMT, RCBT and Randomized Paper-Pencil Test (RPPT) examination mode groups. The findings indicated that in the English language test, the performance of students in the RCBT were significantly better than those of others. The study however showed that participants agreed that CMT was better if curbing cheating is desired. This was got after analyzing the Scale of Attitude to Computer-based Testing questionnaire. From these findings, it was recommended that while the adoption of RCBT should be full and immediate in order to prepare students for computer-based examinations in future, the adoption of CMT although important for it has potential for curbing the menace of malpractice and promoting true learning should be a gradual process for all examinations in Nigerian secondary schools. This study and the present study are related because they both examined the use of CBT for testing English language. However, while

this study was done at the secondary school level, the present study was done using Universities. Furthermore, unlike this study that was done in Abuja, the present study examined the suitability of CBT for testing the use of English in South east Nigeria.

Still on the efficiency of the computer mode of testing, Duc (2017) also examined the efficacy of Computer-Based Model for Enhancing Vietnamese EFL Learners'Autonomy in Learning Oral Skills. The main aims of the study were to investigate whether it is possible for Vietnamese learners of English to enhance their autonomy in practising speaking skills with the use of a computer-based model and to make the learners aware of their learning role in speaking tasks. An experimental research design was adopted for the study. The sample constituted intermediate level students of English at a university in Vietnam. 21 students made up the experimental group while 19 students were in the control group. The results of the study showed that the students in the experimental group who were tested using computer-based model performed significantly differently in speaking tests from the ones in the control group. Thus, the researchers concluded that an effective implementation of the model could be considered as a foundation to assess students' oral performance to help them to be more responsible for their learning. This study is related to the present study because they both studied oral English and computer-based model of testing. However, the design of the studies, instruments for data collection and area of the studies are quite dissimilar.

At some point, studies on the use of computer-based tests for oral English examination shifted from inefficiencies inherent in the test to how test takers' viewed it. To this end, Shi (2012) carried out a study titled "Exploring Students' Anxiety in Computer-based Oral English Test". The study sought to unravel the state of anxiety in a computer-based oral English test and the impact of the test anxiety on the candidates' performance. The sample was made up of 80

students who were randomly selected. A questionnaire adapted from Sarason's Test Anxiety Scale was administered on the sample immediately after taking an oral English test on computer in a multimedia language laboratory. Two raters analyzed the correlation between the test anxiety score and that of their oral test. Results showed that test anxiety in the computer context was relatively high. It was, therefore, suggested that improving testing environment and strengthening pre-test training can be used to reduce the level of anxiety and, therefore, help evaluate students' real oral English proficiency. This study is related to the present study in that it deals with the use of CBT in assessing oral English, and this was also a major variable in the present study but the present study also dealt with other skill areas of English.

Similarly, Wan and Zhan (2016) investigated test takers' beliefs and experiences on a high-stakes computer-based English listening and speaking test. The study was carried out due to the fact that most studies on computer-based test were found to have excluded discussions in validation studies and studies concerning the uses and consequences of computer-based testing. The sample of the study was not defined but comprised Senior III students in Guangdong Province, mainland China. To collect data, an interview schedule on students' views about the high-stakes computer-based English Listening and Speaking Test (CELST) and their experiences of preparing for and taking the test. The data analysis indicated that the students had a distinct understanding of the CELST validity and also tentatively suggested a relationship between the students' views of the CELST design, their test preparation practice and their test taking process. Through these findings useful information for sharpening a computer-based English listening and speaking test and for generating positive washback on English learning were got. In relation to the present study, the present study also ascertained the suitability of oral English computer-

based test. However, the present study also investigated other areas of English apart from speaking and listening.

In a more recent development, Pizarro and Larborda (2017) carried out a research titled "Analyses of Test-Takers' Views on a Computer-Based Speaking Test". The study focused mainly on examining test-takers' views on a computer-delivered speaking test in order to investigate the aspects they consider most relevant in technology-based oral assessment, and to explore the main advantages and disadvantages computer-based tests may offer as compared to face-to-face speaking tests. Data for the study was generated using a small-scale open questionnaire. All students of Universidad de Alcalá in April 2016 who took the APTIS (a computer-based test of general English proficiency developed by the British Council) test constituted the sample of the study. Results revealed that examinees believe computer-based tests provide a valid measure of oral competence in English and are considered to be an adequate method for the assessment of speaking. Interestingly, the data suggest that personal characteristics of test-takers seem to play a key role in deciding upon the most suitable and reliable delivery mode. The relationship of the study with the present study is that it worked on oral English which is one of the variables the present study worked on. They are also related in terms of the instrument used for generating data which is the questionnaire. Nonetheless, the studies differ in a number of ways. First, the present study also investigated the views of students on use of CBT for testing reading comprehension, grammar and writing. Secondly, the area of the present study was south eastern Nigeria and data for this particular variable under review was generated through lecturers as well as students.

Lee and Winke (2017) also investigated how young language learners process their responses on and perceive a computer-mediated, timed speaking test. Seven computerized

sample tests adopted from Test of English as a Foreign language (TOEFL) Primary speaking test tasks were given to twenty 8-, 9-, and 10-year-old non-native English-speaking children (NNSs) and eight same-aged, native English-speaking children (NSs). The children's attentional foci on different test components (e.g., prompts, pictures, and a countdown timer) were investigated by means of their eye movements. The eye movement indices (visit counts and fixation durations) were associated with spoken performance. Qualitative data (interviews; picture-drawings) on their test experiences were collected from the children. Results indicated a clear contrast between NNSs and NSs in terms of speech production. It was also found that the groups' eye-movement patterns differed. From these results, discussions on the potential effects of test-specific features on children's performance and child-appropriate test accommodations and practices were made. The study and the present study are related in terms of their shared interest in electronic testing of oral English. However, while Lee and Duke's study was done using children the present study was done using undergraduate students. The two studies also vary in terms of content scope and research design.

Studies on Grammar and Computer-Based Test

In the area of using computer to test grammar ability, Ahmadi and Baradadi (2014) carried out a study titled examining Iranian EFL learners' knowledge of grammar through a computerized dynamic test. The study was guided by three research purposes. These purposes were to investigate the difference between dynamic and nondynamic tests, gain knowledge on testee's learning potentials and also understand how mediation works for high and low ability students. The study was done using 83 university students. A computer software was developed for the actual experiment. This software was designed in such a way that it was possible for it to hints for tackling each question and therefore able to automatically adapt the difficulty level of

the test to the proficiency level of each testee. The results of the study indicated that students' grammar ability was enhanced when they took the computerized dynamic test. It was also found that the computerized dynamic test helped in obtaining information on students' learning potential. The researchers thus concluded that using computer-based dynamic assessment will ultimately lead to the development of the not only students' ability but will also give a more comprehensive picture of their learning potential. The researchers also recommended that schools should adopt computerized dynamic assessment to make more informed decisions about their students. In relation to the present study, this study looked at the use of computerized methods for testing grammar. However, the two studies differ in terms of geographical scope as well as content scope.

Similarly, Long, Shin, Geeslin and Willis (2018) evaluated a web-based language placement test to ascertain its effectiveness. The purpose of the study was to obtain an empirical evidence to validate the claims made about the intended interpretations and uses of scores based on a new web-based Spanish language placement test. Three research questions guided the study and the study adopted an experimental research design. The sample for the study was made up of 2,201 first year and transfer students at a large Midwestern public university. The instrument for data collection was a test. The test contained 100 items. Out of these, 65 were on grammar and the rest 5, 13, 7 and 10 were on sound discrimination, listening comprehension, reading comprehension and vocabulary respectively. The students' responses were electronically scored. Cronbach's alpha was used to determine the internal consistency of the test scores of the 2,201 test takers. The analysis of internal consistency showed that the test was very reliable at $\alpha = .92$. The analysis of content validity also showed that the content of the test were in tandem with the content incorporated in the course materials and curriculum. Specifically, the test sections (i.e., grammar, listening comprehension, vocabulary, etc.) were very representative of the skill sets on

which students received practice and instruction. The researchers then recommended that if the processes of the test used for the study can be adopted, the computer-based tests' potentials can be fully harnessed by any institution. Similar to the present study, the study under review sought to find out if an electronic language test was very representative of the skill sets on which students received practice and instruction. Further, the study also examined the use of CBT for testing grammar. However, the two studies differ in terms of research design and area of study. Again, while this study was done for Spanish, the present study was on English language.

Other studies on grammar and computer-based tests were more related to computerized instruction than to computerized testing. For instance, Salmasi Bonyadi and Alavinia (2015) conducted a study titled CALL-assisted enhancement of grammatical accuracy: Iranian EFL learners studying in rural settings. Essentially, the study sought to find out the extent to which using two types of instructional materials namely; computer-based and print-based materials may affect Iranian EFL learners' grammatical accuracy. When the study began, member of the control and experimental groups were randomly selected from thirty homogenous high school EFL learners. Next, a pre-test was administered to these learners in order to find out their level of knowledge with the grammatical structures of interest before the treatment. During the treatment, learners in the control group were taught by the researchers using a grammar textbook while those in the experimental group were taught the same grammatical points through computer-based materials in a language laboratory. To measure the learner' achievement, a post-test was administered on them after the treatment period. The results revealed that even though utilizing computerized instruction within experimental group led to highly positive gains using computer based materials was not found to be that much effective. This is because the results got at the end of the whole exercise were in favour of control group. Even though the results of their study

were contradictory, the authors concluded that the integration of computerized instructions in the EFL classrooms might help motivate and enhance learners' mastery of English grammar. Although the study is related to the current study because they are both interested in suitability of computer-based for testing grammar, they differ greatly in the area of study and also in the fact that the present study will not concern itself with the mode of instruction.

Studies on Reading Comprehension and Computer-Based Test

Just like in the other areas of English, studies have been carried out on reading comprehension and computer-based test. Higgins, Russell, and Hoffmann (2005) examined the effect of a passage presentation using computer-based test on students' performance in reading. In this study, 219 students used for the study were randomly selected for the research. They were made to take a reading comprehension test that lasted for one hour on both paper and computer. The results got from test were used to find out the differences in students' test scores on both modes of assessment and at the same time take into account the students' computer skills. ANOVA and regression analyses were used to analyse data generated. Evidence from the analysis revealed that there was no significant difference in reading comprehension scores across testing modes. This is because students in the paper group answered 58.1% of the items correctly and students in the computer group answered 52.2% of the items correctly. Thus, the point of difference was just 6% and was found to be not significant at the $p<.05$ significance. Secondly, there was also no statistically significant difference in reading comprehension scores based on computer fluidity and computer literacy of the students. However, a pattern in performance points to the fact that students suffered some form of setback when scrolling through the text in the computer test mode, this was true particularly for students with lower computer skills. Finally the results of the study revealed that most of the students that took the test indicated that they

preferred the computer-based reading test to paper-based test. The authors reported that although the sample for their study did not include many students who had inadequate prior computer skill, the responses got from the survey, the rate of completions, and evidence got from observing the students all show that computer anxiety by and large did not hinder students' ability to take the assessment. From their conclusions, they suggested that there is need to carry out more research in order to find out differences in scores when reading comprehension assessments are administered through computer to a bigger and more diverse group of students. It relates to the present study for they are both studied reading comprehension and CBT but differ in terms of school location, subject and level of students. The present study unlike the one under review was done using survey research design and not experimental design.

To provide further evidence for the findings reported in Higgins, Russell, and Hoffmann (2005), Ackerman and Lauterman (2012) conducted a study on effects of taking reading comprehension examinations on screen and on paper. The study examined the effects of time pressure on undergraduate learners when reading comprehension test is paper or computer based. Just like in the earlier study, the authors adopted an experimental research design. The authors reported that in their first experiment, test scores in computer based tests were lower than on paper when time pressure was applied; however, no difference was noted under free regulation. In the second experiment, under paper based test, the time condition was manipulated within participants to include time pressure, free regulation, and an interrupted condition where study was unexpectedly stopped after the time allotted under time pressure. No media effects were found under the interrupted study condition, although technology-related barriers should have taken their effect also in this condition. In computer based method, no such adaptation was found regardless of the medium preference. Beyond that, paper based learning and testing was more efficient and self-assessments of knowledge were better calibrated under PBT conditions. The

study is related to the present study in that they both talk about computer-based assessment of reading comprehension. Nevertheless, the present study used survey research design.

Additionally, Chen, Cheng, Chang, Zheng and Huang (2014) conducted a comparison of reading comprehension beteen paper and computer-based methods of testing. Two types of questions in reading comprehension, namely multiple choice questions and summarization questions were used for determining the reading comprehension ability of learners. Data for the study were collected from 90 college students. The findings of the study indicated that the paper group performed significantly better than the computer-based reading comprehension group. This finding confirmed and eliminated the factors affecting the test of reading comprehension in paper and computer based method of previous studies conducted by the same authors. For this reason, the authors concluded that by providing students enough and appropriate training, they could have higher familiarity with computers and then gain better during reading comprehension computer-based method of testing. The study under review is however different from the present study because it was a comparative study while the present study was a descriptive survey that sought to investigate the suitability of the use of English reading tests.

Still on comparability, Asp (2018) carried out a study on the comparability of paper-based and computer based English reading comprehension tests. The study addressed the transition of high-stakes English reading comprehension tests from paper-based to computer-based test. Specifically, the study examined whether the new delivery mode from a measurement point of view can be regarded as equivalent to the traditional paper-based test. The empirical basis for this quasi-experimental study consisted of data from large-scale pilot studies carried out using year nine students n Swedish Schools were English is compulsory. The study was carried out using a quasi-experimental research design. A total of 1275 students were used for the study.

A test was used to generate data from the sample. And independent T-test and regression analysis were used to analyse data got from the study. The independent T-test indicated that test items requiring constructed responses from students in the computer-based test group gave an average lengthier responses compared to the paper-based group, but the difference did not result in better performance for any of the modes. Regression analyses revealed that the delivery mode had no general effect on the scores. From the results, it was also evident that boys' scores increased when the test was computer-based. This was even however more evident on the shorter reading comprehension tasks than the extensive reading comprehension task. This study and the present study both addressed reading comprehension. However, the research method adopted and instrument for data collection differ. More so, the present research is concerned with finding out the suitability of CBT and not in comparing it with PBT.

Studies on Writing and Computer-Based Test

Worthy of first mention in this regard is the study done by Connelly, Gee and Walsh (2007). The pair performed a comparison of keyboarded and handwritten composition and the relationship with transcription speed. The major purpose of the study was to determine the link between keyboarding and handwriting fluencies among primary school pupils. The study also set out to find out the relationship between the quality of compositions written using word-processor and keyboarding fluency of these pupils. 300 primary school children constituted the sample. Their class ranged between year 5 and 6. The children were asked to complete a test titled 'measure of compositional quality' using hand and using keyboard. Results revealed that there was a high correlation between handwriting and keyboarding speed. It was also found that children from both years wrote faster when they used hand than when they used the keyboard. Only a small number of children in years 5 and 6 wrote faster using keyboard. The results also

showed that the quality of composition produced by the children when they write with hands was more superior than the one they produced using keyboard. The authors then recommended that keyboarding (touch-typing) needs to be explicitly taught to the children so as to develop their fluency in using keyboard and also open their full potential in writing using word processor. The point of relationship of this study to the present study is in their shared interest in the writing skill. Nevertheless, the sample of the present study was made up of undergraduate students and lecturers. Again, the present study was done in Nigeria as opposed to Britain.

Mogey, Paterson, Burk and Purcell (2010) also carried out a research on computer-based test writing examination. However unlike the study above, their interest was on students' preference. The study was titled – "Typing compared with handwriting for essay examinations at university: Letting the students choose". From the title, it can be deduced that the research was done and reported during the period that students were still allowed to choose between typing and handwriting methods of composition for an examination. The population of the study was 70 first year students from school of Divinity University of Edinburgh. The study made use of mixed-method research design. Focus group discussions, tests and structured questionnaire were used to generate data for the study. Minitab software was used to analyze the data. Analysis showed that the majority of students did not choose to write their essays using word-processor. Out of the 70 students that were used, only 16 chose to type. The authors deduced that the reasons students gave for not choosing to type their essay varied. The few students that have had any prior opportunity to sit for examinations using a computer reported that they are worried about the reliability of the technology; they were also worried that the time for the examination will not allow them to produce their best essays. Poor typing ability was also cited as an issue of concern. It was recommended that institutions trying to adopt computer-based writing

assessment should create avenues for students to practice this was because most of the issues of concern cited by students about word processing their essays can be curbed if students are allowed to do some form of rehearsal before the main examination. This study is similar to the present study in terms of focus on writing skill assessment using CBT. However, they differ in terms of subject scope, area of the study and instruments for data collection.

Chen, White, McCloskey, Soroui, & Chun, (2011) examined the effects of computer versus paper administration of an adult functional writing assessment. The study which was carried out in United States of America, examined the comparability of paper and computer versions of a writing examination administered to adults that were 16 years and above. Using both paper and computer modes, three tests were administered on the population. The analysis on mode effect on scoring showed that the differences in the scores of the individuals were not significant statistically and practically. The results also showed that for most writing tasks, adults performed better when they wrote on paper than when they wrote on the computer. The effects the administration mode had varied in terms of employment status for one task, by race/ethnicity, age and word-processor experience for another task, and remained the same for all subgroups for the third task. Based on their findings the researchers suggested that a computer-based mode of test administration can be disadvantageous to some people depending upon the writing tasks. In relation to the present study, the study investigated CBT on writing. However, the sample of the present study was lecturers and students of Use of English.

Further on writing, a study named paper-based or computer-based essay writing: Differences in performance and perception was done by Kohler (2015). The study sought to collect and compare data on the performance processes and perceptions of students on their university EFL programmes PBT and CBT. The underlying aim of the study was however to get

a backdrop on which further considerations on whether or not the implementation of computer-based writing assessment for ESL courses should be continued. Variables such as typing ability and computer-experience of learners were also considered. These variables were compared to see if they have a quantifiable impact on students' perceptions, processes and products in PBT and CBT respectively. The study was guided by four research questions. Quasi-experimental as well as survey research designs were adopted for the study. Eight students from universities in Midwestern United States were randomly sampled for the study. judging from their performance on the international English Language examination taken by international student and their performance on their semester English language placement test which an Accuplacer ESL Reading test and an ESL essay test were a part of, these students were placed into the same ESL course that focuses on academic reading and writing skills. In addition to the nine participants, one more student was video-recorded while writing the PBT and CBT essays. Furthermore, six ESL instructors also participated by providing answers to a questionnaire based on the essays of participants that they scored. The main sample for the study was shared into four groups randomly. These groups were labeled A, B, C and D. The participants were each given 30 minutes to complete each essay in the writing session. For the investigation aspect, four distinct questionnaires delivered online were used. The results from the study showed that ESL the proficiency level of the students used in this study was not yet high enough for them to write computer-based essays. Hence, there was nothing to substantiate the fact that students were under obligation to utilize CBT for their high-stakes tests. The results also revealed that giving the students an opportunity to choose which testing mode they prefer will also not be preferred for there were discrepancies in the way raters scored essays in both modes of testing and also in students' perception of their abilities in both modes of testing. This study is related to the present work in that it deals with the use of CBT for testing writing which is a major variable in the

present study but differ because the present study looks at oral English, reading comprehension and grammar. Besides, the sample for the present study was larger than the one used in the study under review.

The study by Duc (2017) on the efficacy of Computer-Based Model for Enhancing Vietnamese EFL Learners'Autonomy in Learning Oral Skills evidently came after he conducted a study on the assessment of computer-based testing model for English writing skills in 2016. In this earlier study, Duc (2016) examined the computerized assessment of English learners' writing ability in the writing tests in view of the use of Computer-Assisted language learning (CALL) for the learners of English as a foreign language. The study was a case study of Vietnamese. It explored the use of computers to assess English language learners' writing abilities. To constitute the sample for the study, intermediate level students from Vietnamese university who were taking writing post tests were selected. These tests were gathered, rated and grouped using five point scale. At a $p<0.05$ level of significance, there was found to be a statistical significant different in the testee's writing test scores. Based on this finding, it was suggested that a scoring model for assessing students' performance in writing needs to be developed and effectively implemented. The researchers also suggested that other researchers could use the work as a foundation for further research into computerized assessment especially as it concerns designing and implementing task types for assessing the academic proficiency of students in English language that are innovative and technology-mediated. The study and the present study are related in terms of their shared interest in assessing writing through CBT; however, they differ in terms of area of the study and research design. Again, this study was an experimental study, but the present study was a descriptive survey.

Studies on Students' Perception and Computer-Based Test

Evidence abound to show that researchers have been interested in studying test taker's perception or views of computer-based test. For instance, Karadeniz (2009) carried out a research titled "The impacts of paper, web and mobile based assessment on students' achievement and perceptions". The two major purposes of the study were to examine students perceptions of CBT mode of delivering their assessment and also to find out the impacts of mobile and web-based assessment on students achievement in internet assisted instruction. Two by three (2x3) factorial design was adopted for the study. The population of the study was second year students of Instructional Technologies and Computer Education Departments who as at the Spring Semester of 2006/2007 took courses on Microprocessors and Computer Hardware. Next, the researcher selected 38 students from the entire population. Out of the 38, 20 were put into the experimental group and the remaining 18 made up the control group. However, data on perceptions of students was gathered through questionnaire from students in the experimental group who took part in the mobile based test, paper-based test and web-based test. From the findings of the study, it was found that except the difference in scores of the test taken during the second week, there was no significant difference in the students' achievement levels among those who took the web, mobile and paper based tests. In the end, it was also found that the perception of students on the mobile and web-based test was positive. This was due to the instant feedback, ease of use and comprehensiveness of the test modes. When ranked from top to least, it was evident that web-based test was the most preferred wile paper-based test was the least preferred. The study and the present study are similar for they both studied the perception of students on computer-based test. However, the present study used survey research design alone

for the purpose. The sample of the present study was also drawn from students of Use of English in federal universities in south east Nigeria.

In order to find out the perceptions of students taking CBT from other fields of study aside Computer Education, Jimoh, Shittu and Kawu (2012) studied students' perception of computer-based test (CBT) for examining undergraduate chemistry courses. The main purpose of the study was to find out the perception of undergraduate students on their chemistry courses computer-based test at University of Ilorin. Citing convenience, the researchers administered a questionnaire on a purposively selected 48 students that had written chemistry using CBT in the University. The results from the data collected showed that most of the students agreed that they were competent in using computer and that they had mild or low computer anxiety. The results also showed that students were particularly happy with the transparency, fastness in marking and immediate scoring associated with the test. The overall result however showed that students have not accepted the CBT mode fully. This was largely because they felt the validity of the test is low since there were always many erroneous chemical structures equations and chemical formulas. The researchers then suggested that for the testing experience to be become favourable for students and for future CBTs to gain validation in this particular context there is need to improve on the quality of item designs and also to allot time during the examination according to test difficulty. This study is similar to the present study for it examined the perception of students on use of CBT. However, the study only examined this in relation to Chemistry and at University of Ilorin but the present study established same for the Use of English programme in Federal universities in South East Nigeria.

Still in the Nigerian context, Samson and Okon (2015) carried out a study on students' perception of computer based test in Kogi State University. The main purpose of the study was

to determine Kogi state university student perception of their general studies programmes computer-based tests. To collect data for the study, a questionnaire was developed and administered on randomly selected undergraduates from different faculties that were sitting for the institution's second semester GST computer-based test in the 2013/2014 academic session. Percentages and frequency counts were used to analyse the data got. Further, Likert rank order scale was used to test the hypothesis generated. The overall findings indicated that there was no significant difference based on gender on students' views of computer-based test in Kogi state university. In other words, according to majority of the respondents, gender should not be considered as a problem talking about Kogi State University computer-based test. As such, this study recommends that ICT training and awareness should be adequately given to the students before they are given computer-based testing regardless of their gender. Although this study is related to the present study in terms of content, both studies differ from each other in terms of areas of the studies. The present study also concentrated on the Use of English as a general studies programme and did not also consider influence of gender on students' views.

Similarly, Joshua, Joshua and Ikiroma (2016) investigated computer-based testing in Nigeria's university entrants' matriculation examination: readiness and acceptability of critical stake-holders. The study set out to examine the readiness levels as well as the acceptability level of students on the innovative method of testing known as CBT. Survey research design was adopted for the study. To take care of the variables of proprietorship, school location and gender, 10 secondary schools in Cross River State, Nigeria, were selected through stratified random sampling technique. To make up the sample for the study, 60 SS3 students were randomly selected from these secondary schools. The structured questionnaire developed for the study yielded a reliability of .81 during trial testing hence it was used to collect data for the study. The

data were analysed using mean, percentage, t-test and ANOVA statistics. From the results, it was deduced that the acceptability level of CBT by students was moderate but their level of readiness to use the mode was very high. It was also found that students of federal government owned and privately owned schools had relatively higher preference for CBT. From the findings, the researchers concluded that when it comes to innovations that will enhance our participation as a country in internationally acclaimed best practices, Nigerian students are very supportive and eager to participate. Although this study just like the present study investigated students' attributes that affects the use of CBT, they differ because the present study focus on undergraduate students and not secondary school students.

The study by Olafare, Akinoso, Omotunde and Annenne (2017) casts a doubt on low level of acceptance of CBT reported in the preceding studies in their study titled, "students' perceptions of computer-based test in Nigerian universities". The objectives of the study were to investigate students' perceptions of the ease of use; usefulness and credibility of CBT in Nigerian universities. Three research questions guided the study and the study adopted survey method of descriptive research. A total of 1506 students' were randomly drawn to constitute the sample. These students were from Covenant University; Kogi State University; University of Ibadan; and University of Ilorin. Data was collected using structured questionnaire and analysed using mean and percentage. The study showed that students had positive rating on perceived usefulness (64.3%), ease of use (66.1%), and credibility (67%) of CBT. The study concluded that students perceived CBT as useful, easy to use and credible and thus the level of acceptance was high. The implication is that thee will be an increase in the adoption of CBT mode for use in Nigerian universities due to the perception credibility, usefulness and ease of use of CBT. Among other things, the researchers particularly recommended that Nigerian universities should

waste no time before adopting computer-based test. In relation to the present study, students' perception of the ease of use and usefulness of CBT was studied. However, since perception cannot be gauged only by perceived ease of use, usefulness and credibility, the present study will add credibility to the findings of the research above by providing information on students' perception of the social influence and appropriateness to content of using CBT. Again, the present study unlike this one will be done using students from Federal universities in South East Nigeria.

Focusing further on perception as it influences acceptance of CBT, Okocha, Toluwani and Owolabi (2017) investigated student perception and acceptance of computer based testing. The main purpose of the study was to examine students' acceptance of computer based testing. Descriptive survey research design was adopted for the study and a total sample size of 300 students from General Studies, Physics, Use of Library &ICT, Chemistry and Entrepreneurial Studies Departments were selected using simple random sampling technique. Data was collected from students using a structured questionnaire. The three sections of the questionnaire was made up of Section A which measured students' demographic characteristics such as their level of study, colleges and gender, Section B which measured students' acceptance of computer based testing, and Section C measured courses taken in CBT, preference for paper-based testing and performance in tests/examinations taken. Descriptive statistics of mean and percentage were carried out to measure the perception of students on computer-based testing, while regression analysis was carried out to test the relationship between acceptances of Computer based testing and dependent variables (gender, college of study and level of study). The findings of the study revealed that majority of students had a positive attitude towards CBT though more than 80% of respondents indicated the need for training on the use of CBT. It was also discovered that

undergraduate students who took Physics and Chemistry showed less interest in CBT thus indicating their preference for paper based test. The study is related to the present study for they are both concerned with studying students' perception of CBT. In addition, students' perception n use of CBT for general studies examination is also a common concern in both studies. However, the present study will be useful in establishing what the perception of students on CBT in Federal universities in South East Nigeria. Further, the present study will only concentrate on the Use of English programme thus providing more reliable information of students' perception in this regard.

Adopting the same design and area of study as Olafare, Akinoso, Omotunde and Annenne (2017), Ogunlade, and Oladimeji (2018) examined the perceptions of lecturers on CBT at Landmark University Omu-Aran, Nigeria. The main purpose of the study was to examine the perceptions of lecturers on CBT's credibility, usefulness and ease of use in Nigerian universities. 50 lecturers were randomly sampled for the study. To answer the research questions percentages was used. The results of the study showed that ratings of lecturer on credibility, usefulness and ease of use were 70%, 65% and 65% respectively showing that lecturers had positive ratings on the use of CBT. In conclusion, the researchers submitted that lecturers perceived CBT as credible, useful and easy to use. However, the authors recommended that the efficiency of CBT Nigerian universities should improved in order to make its credibility level better. It was also recommended that lecturers should be more encouraged to always use CBT when conducting their tests and examinations irrespective of the number of students taking the examination. Just like this study, the study under review investigated the perception of users of CBT on it. However, while the study focused on lecturers' perception, the present study investigated the perception of students.

Studies on Challenges in using Computer-Based Test

The infrastructure and technical skill area has been a major concern to researchers since CBT began to gain wide acceptance in Nigeria. Abubakar and Adebayo (2014) conducted a study on prospects, challenges and strategies of using computer based test for conducting examination in Nigeria. The purpose of the study was to identify the prospects of computer-based testing in Nigeria. The study also sought to identify the challenges that may pose as threats to the successful adoption of CBT in all examinations in Nigeria so as to decipher ways to solve them timely enough. It was a qualitative research and thus secondary data notably textbooks, academic journals, conference papers, internet materials among others were primarily utilized. The study found that the adoption of CBT in Nigeria faces seven critical challenges among which are: poor policy and implementation culture, poor ICT culture, electricity issues such as power failure, economic factor, software and security. The researchers then recommended that seminars on the use of CBT should be frequently organised, public relation campaign on CBT should also be held, online campaigns, regular power supply, implementation of ICT policy and so on should be adopted as ways to kick against these aforementioned challenges. In relation to the present study, the study discussed infrastructures needed for CBT. However, while it was a qualitative study, quantitative measure was mainly used to collect data for the present study.

To corroborate Abubakar and Adebayo's findings, Nkwocha and Akanwa and Nkwocha (2015) examined the challenges encountered using CBT by 2015 UTME candidates in Owerri zone, Nigeria: test validity implications. The research mainly investigated challenges encountered in using CBT by 2015 UTME candidates in Owerri Zone one and examined their implications on the tests' validity. Survey design was adopted. The population of the study comprised 1,006 SSIII students in public secondary schools in Owerri Zone one who took 2015 UTME. The sample comprised of 20% of the population selected using stratified random

sampling and simple balloting. Seven research questions guided the study. A Likert-type questionnaire was used for data collection. Mean scores were used for data analysis. Among the challenges identified were; insufficient computers and computer centers, power failure, candidates' incompetence in use of computers, posting of candidates far from home by JAMB and unfavourable timing of exam sessions. The study concludes that these challenges hinder test validity. The implication is that candidates in Owerri Zone one centers would have performed better than they performed in 2015 UTME if they were examined under a conducive exam environment. The recommendations made include that construction of more computer centers, provision of more computers for UTME and enhancement of power supply by the Government, posting of candidates close to their homes and postponement of use of CBT for UTME by JAMB till the identified challenges have been curbed. The infrastructures discussed in this study are in consonance with the ones of interest in the present study. However, this study will focus on Use of English and undergraduate students will constitute part of the sample for the present study.

Additionally, Onyibe, Nwanchi-Ikpor and Abdulkareem (2015) also investigated the prospects and challenges of the computer-based testing technique in Nigeria. The underlying purposes of their study were to find out the challenges facing the use of CBT for examinations in Nigeria and also to forecast the prospects of CBT to be fully adopted in all the country's public examinations. Again, through secondary sources such as internet resources, conference papers as well as journal articles data for the study was got. Even though so many challenges were discovered, the main source of challenge and worry was on the fact that there were little or no infrastructures for conducting CBT in the country. In terms of prospects, the study reported that the prospects of CBT in Nigeria were very high. This was mainly because key government agencies as well as other major public examinations in the country such as JAMB and Nigeria

Immigration Service (NIS), have all accepted the use of CBT for their examinations. As against the one CBT centre to one local government area being considered for implementation by the government, the researchers suggested that not less than four standard CBT centres should be built and equipped by the government in each of the 774 local government areas in the country. According to them, this was the only means of ensuring and facilitating seamless transition from paper and pencil test to computer-based test. This study is very closely related to the present study for it identified examination centres and ICT gadgets as the key infrastructures influencing the use of CBT. Nevertheless, the present study used a quantitative design and also got data from primary sources. Further, the present study focused on University undergraduates and not public examinations for the whole country.

Away from the prospects, Adepoju (2016) did an evaluation of the challenges encountered in the first general computer based test in Nigeria. The study which was done immediately after the first generally compulsory JAMB (Joint Admission and Matriculation Board) computer-based test had as its major aim to empirically archive the challenges which were encountered during the examination. A total of 278 students that sat for the 2015 JAMB/UTME CBT participated in the study. This was made up of students in Gombe Pre-Nigeria Certificate in Education programme, Federal College of Education (Tech.), Gombe State University and School of Basic and Remedial Studies. The instrument for data collection was a questionnaire developed by the researcher and was titled Computer Based Test Challenges Questionnaire (CBT-CQ). From the results, it was shown that 54% of the candidates of the 2015 JAMB/UTME in Gombe State were not familiar with computer usage before they took part in the examination. The result also revealed that up to 47.2% of the candidates were never trained about CBT before being given the examination. Hence, the major challenges encountered by the

candidates of the 2015 JAMB/UTME were identified as: late start time for examination 2) unsteady internet networks during the examination, 3) power outages during the examination, and 4) unfavourable conditions of examination centers. From the findings, it was recommended that stake holders should take necessary actions so as to discover means of either removing entirely or reducing to the barest minimum the challenges identified before future JAMB computer-based tests. Just as in the present study, infrastructural challenges to CBT were discussed. However, they differ in the areas of the study and the content scopes of studies.

Finally, Olafare and Boor (2018) investigated computer-based test as a panacea to students' performance at Olabisi Onabanjo University at Ogun State Nigeria. The study adopted a descriptive survey research design. To collect data for the study, a questionnaire was developed and after trial testing yielded a reliability coefficient of 0.77 showing that it is very reliable to be used for the study. The instrument was administered on the 125 undergraduates who were sampled for the study but only 115 filled the questionnaire correctly and promptly returned it. Mean and standard deviation were the descriptive statistics used to answer the research questions. From the findings of the study, it was found that although undergraduate students' performance is positively influenced by the use of CBT, there are still a lot of challenges facing the examination mode. The study recommended that efforts should be doubled to ensure that computer education is taken seriously and taught religiously in the primary and secondary school levels of education. This is to ensure that students at these levels gain the required computer skills for understanding how CBT is done. The study further recommended that adequate facilities should be made available for the examination. It is related to the resent study in that it studied infrastructural challenges of CBT implementation. The two studies are also related in

terms of research design and nature of the sample. However, the locations of the two studies differ.

Summary of Literature Review

The literature review of this study was done under three sub-headings namely: conceptual framework, theoretical framework and empirical framework. Under the conceptual framework, the concepts of Use of English Programme, English Language Testing, Basic Modes of Testing and Suitability of Computer-Based Tests were discussed. Use of English was described as a university wide English language course undertaken to prepare students for their day-to-day communication needs and in the world of work after school. The literature also revealed that test is an integral part of the teaching and learning process. As such, the Use of English students are given examinations in order to be able to make valued judgments about their progress in the course. It is also shown that the constant search for a better way for administering academic test and to tag along with the emerging technologies of the 21st century, higher institutions are now adopting computer-based tests in their examinations. Computer-based test was defined as the process whereby computers are used to administer, score, record and publish tests and test scores. These CBTs can be in form of Local Area Network or Web-Based Tests. It was also discussed that CBTs can either be linear or adaptive. It is the adaptive computer-based tests, which is anchored on the Item- response theory of testing that has been recommended by experts for language testing.

The literature also showed that adopting CBT, its suitability to course content and course objectives, perception of students, infrastructural as well as technical challenges needs to be determined and taken care of. Suitability of CBT to use of English has to do with the

appropriateness of the question for content areas taught in the course as well as its authenticity in terms of bringing about real performance. The perception of students was described in terms of how useful academically and socially as well as easy to use CBT is. Going on, infrastructural challenges were identified as those material and immaterial resources that must be kept in check for a suitable CBT to be run. These include building, electricity and functional computers, cables as well as sockets. It was also pointed out that since CBT is manned by the technical crew from ICT unit, there are some basic skills these engineers need to possess. These skills were broadly identified as debugging, web design as well as web maintenance skills.

In the aspect of theoretical review, the SECTIONS model of technology selection in education as well as The Unified Theory of Acceptance and Use of Technology **(**UTAUT) were discussed. The SECTIONS model proposes eight major constructs that any technology used in education must satisfy. The theory specifies considerations to be made as it relates to students, teaching functions (course objectives), cost, interaction and organization before adopting any new technology in the education system. The Unified Theory of Acceptance and Use of Technology (UTAUT) was used to explain the perception of students about CBT. The theory proposes that four constructs namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) determine users' behaviour towards a technology. And when any of these constructs is negative to a user, it will ultimately affect the user's perception of the technology in a similar line.

In the empirical review, studies on English language, oral English, speaking grammar, writing, students' perception, infrastructural and technical challenges were reviewed in relation to computer-based test. The thirty-five studies reviewed cut across different geographical areas, content areas, faculties, and institutions. They also contained varying purposes, questions and

designs. Evidence from the literature reviewed shows that there is dearth of research on areas such as computer-based tests and grammar examinations. Thus, the present study is of immense value in this regard. It can also be observed that there is lack of agreement between researchers on the perception of students on the use of CBT for use of English examinations. Although Karadeniz (2009) reported a positive perception, Jimoh, Shittu and Kawu (2012) reported a negative perception. The present study also added to knowledge on this issue. More importantly, the literature available to the researcher showed that there have been no studies to the best of the researcher's knowledge as evidenced in the reviewed literature to show the suitability of computer-based tests for Use of English examinations in South East Nigeria. This study, therefore, hoped to close this gap.

CHAPTER THREE

RESEARCH METHOD

This chapter describes the procedures as well as methods that were utilized in carrying out this study. These procedures and methods are discussed in terms of: design of the study, area of the study, population of the study, sample and sampling techniques, instruments for data collection, validation of the instruments, reliability of the instruments, method of data collection and method of data analysis.

Design of the Study

For this study, descriptive survey design was used. Descriptive survey is the type of design in which a researcher aims at collecting data on, and describing in a systematic manner the characteristics, features or facts about a given population (Nworgu, 2015). In descriptive surveys, a researcher studies a group of people or phenomenon by collecting and analysing data from only a few people considered to be an adequate representation of the entire group of people. This design has been found to be an efficient way for systematically collecting qualitative and quantitative data from large number of individuals and educational settings. This design was chosen because the present study studied the group of individuals that are involved in the Use of English computer-based test which are students, lecturers and ICT staff by collecting data from a select group of persons that are statistically considered adequate representative of the large population. Furthermore, in descriptive survey research, the researcher specifically investigates, identifies, determines or describes situations or events as they are (Ali 2006; Nworgu, 2015), and this is exactly what the present study did.

Area of the Study

The area of the study is South East Nigeria. South East is one of the six geo-political zones that make up the country. It is made up of Anambra, Abia, Ebonyi, Enugu and Imo states.

Each of these states respectively, has a federal university namely, Nnamdi Azikiwe University, Awka; Michael Okpara University of Agriculture, Umudike; Alex Ekwueme University, Ndufu Alike; University of Nigeria, Nsukka and Federal University of Technology, Owerri;. There is also a school of general studies or a directorate of general studies that oversees the teaching of the Use of English in each of these institutions. However, the major reason for choosing this area for the study is that evidence from literature reviewed showed that the use of computer-based tests for Use of English examination has a very recent history in all the universities in this area. More importantly, there has been no study to affirm its suitability for Use of English. Thus, the present study saw the need to address this concern.

Population of the Study

The population figure for this study was 33, 263 respondents which was made up of, 33,000 second year students from different faculties in the universities (UNN, 10,000; NAU, 8000; FUNAI, 4000; MOUAU, 6000 and FUTO, 5000), 53 Use of English lecturers (UNN, 20; NAU, 10; FUNAI, 7; MOUAU, 8 and FUTO, 8) and 210 1CT staff (UNN, 122; NAU, 42; FUNAI, 3; MOUAU, 20 and FUTO, 23). These figures were got from the school websites and statistical units of schools of general studies and ICT units of the universities that were used in this study.

Sample and Sampling Technique

The sample for the study 1, 312 respondents, which was made up of 1200 second year students, 38 Use of English lecturers and 74 ICT staff. The sample was drawn using multi-stage sampling technique.

At the first stage, three out of the six federal universities in South East Nigeria were selected using purposive sampling technique. This was done so as to ensure that only the universities that had the facilities for CBT and had used CBT in the Use of English examination for at least two academic sessions were selected. The outcome of this was the selection of

University of Nigeria, Nsukka; Nnamdi Azikiwe University, Awka and Michael Okpara University of Agriculture, Umudike.

At the second stage, using simple random sampling technique, a sample of 1, 200 undergraduate students were selected using the specifications made in Nwanna (1981). According to the author, to constitute a sample, 40% of the total population should be used in a population of few hundreds, 20% of the population should be used in many hundreds, 10% of the total population should be used in few thousands, while 5% of the population should be used where the total number is in many thousands. In the case of the current study, the total number of students from the three universities is 24, 000, which is in many thousands. Therefore, 5% of 24,000 made for 1,200 students. To avoid lopsidedness in sampling, proportionate sampling was further used to randomly select the students from the sample in this order: 5% of 10000 = 500 from UNN, 5% of 8000 = 400 from NAU and 5% of 6000 = 300 from MOUAU.

At the third stage, 74 ICT staff were sampled from the selected institutions using the specification from Nwanna (1981). Thus, 40% of the ICT staff is 73.6 approximately 74. To ensure the selected schools were appropriately sampled, proportionate sampling was also employed and the ICT staff were selected in this order: 40% of 122 = 49 from UNN, 40% of 42 = 17 from NAU and 40% of 20 = 8 from MOUAU.

Lastly, the entire 38 Use of English lecturers from the selected institutions were used for the study. In other words, no sampling was done for this group of respondents. This is because the population is of a manageable number.

Furthermore, from the 1,312 respondents, 16 focus group discussants were selected. This was made up of 12 undergraduate students randomly selected from the different faculties in the sampled universities and 4 purposively selected ICT staff that are principal officers in the management of CBT examinations in the sampled universities.

Instrument for Data Collection

Two instruments were used for data collection in this study. These were Questionnaire on Suitability of Computer-Based Test for Use of English Examinations (QSCBTUEE) and Focus Group Discussion Schedules (FGDS) developed by the researcher. The questionnaire has 72 items and six clusters with response options of Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1.

Clusters A to D contained 10, 10, 8 and 9 items respectively. The clusters were also titled; suitability of CBT for testing oral English in the Use of English examination, suitability of CBT for testing grammar in the Use of English examination, suitability of CBT for testing reading comprehension in the Use of English examination, and suitability of CBT for testing writing in the Use of English examination respectively. Cluster E was titled "students' perception of computer-based test in the use of English examination". It contains 15 items. The last cluster which is cluster F was titled "challenges in using CBT in the Use of English examinations" and it has 20 items. The focus group discussion schedules were two and were made up of four and five items respectively. While, FGDS 1 is for ICT staff, FGDS 2 is for students.

Validation of the Instrument

The instruments were given to five experts, two from the Department of Arts Education (Education English Unit), one from School of General Studies (Use of English Unit), one from Science Education (Measurement and Evaluation, Unit) and another from ICT Unit (CBT Management Engineering Section) all from the University of Nigeria, Nsukka. The experts were requested to scrutinize the items of the instruments in terms of relevance, adequacy, language ambiguity and appropriateness. The experts were also required to make comments and suggestions that would help to improve the instrument.

Most observations of the experts were on grammatical incongruities inherent in some items. The experts also suggested that the respondents to each cluster be boldly written on it. Further, the experts also suggested that a focus group discussion schedule for students should be developed so as to help obtain more detailed information on their perception of CBT in the Use of English examinations. The comments and corrections of the experts were used in producing the final version of the instrument.

Reliability of the Instrument

For the purpose of determining the reliability of the instrument, the researcher administered the QSCBTUEE to 30 respondents, made up of five Use of English lecturers, five ICT staff and 20 second year students from the University of Ilorin, Ilorin. The respondents are outside the area for the present study but they possess similar social and educational characteristics as those that were used for the study. For instance, the school is a federal university and it also uses CBT for administering its Use of English examinations.

The internal consistency of the instrument was estimated using Cronbach's Alpha Coefficient Method. This method was considered appropriate because the items in the instrument are not dichotomously scored. The instrument yielded a reliability coefficient of 0.86, 0.81, 0.84, 0.93, 0.81, and 0.75 for clusters A, B, C, D, E and F respectively. According to Nworgu (2015) an instrument that yields a reliability coefficient of 7.00 and above is to be considered reliable for collecting data. Hence, the reliability coefficient of the instrument for this study showed that the instrument is reliable and could be used to collect data for the study. Details are in appendix E, p. 170.

Method of Data Collection

The researcher used six research assistants (two for each school) who helped in administering the instruments on the respondents for the study. The research assistants were

made aware of the need for the study. This was to enable them have the correct answers to give in case the respondents demanded to know the purpose for the study. They were also instructed on how to administer the instrument and collect them on the spot. The focus group discussions data were collected first hand by the researcher.

Method of Data Analysis

Mean and standard deviation were used to answer all the research questions. The real limits for the mean scores used for decision making in this study were set thus:

Mean	**Decision**
3.50 – 4.00	Strongly Agree
2.50 – 3.49	Agree
1.50 – 2.49	Disagree
0.50 – 1.49	Strongly Disagree.

The hypotheses were tested at 0.05 level of significance using independent sample t-test and analysis of variances (ANOVA) statistics. The focus group discussions were transcribed, explored and descriptively analysed.

CHAPTER FOUR

RESULTS

In this chapter, the results of the study are presented. The presentation is done according to the research questions and hypotheses that guided this study.

Research Question 1:

How suitable is CBT for testing oral English in the Use of English examinations?

Table 1:

Mean and Standard Deviation of Responses of Lecturers and Students on the Suitability of Computer-Based Test in Testing Oral English in the Use of English Examinations. (ns=1200, nl=38)

		Students			**Lecturers**					
S/N	Questionnaire items	$\overline{x}$	SD	DEC	$\overline{x}$	SD	DEC	$\overline{X}_o$	SD_o	DEC
1	The Use of English CBT is appropriate for determining students' knowledge of vowel sounds.	2.91	.92	**A**	1.65	.62	**D**	2.28	.89	D
2	The Use of English CBT is appropriate for determining students' knowledge of consonant sounds.	2.92	.89	**A**	1.57	.55	**D**	2.25	.95	D
3	The Use of English CBT is appropriate for determining students' knowledge of primary stress placement in sentences.	2.85	.86	**A**	1.39	.54	**D**	2.12	1.03	D
4	The Use of English CBT is appropriate for determining students' knowledge of secondary stress placement in sentences.	2.88	.80	**A**	1.34	.48	**D**	2.11	1.09	D
5	The Use of English CBT is suitable for assessing students' knowledge of emphatic stress	2.80	.93	**A**	1.42	.55	**D**	2.11	.98	D
6	The Use of English CBT can appropriately be used to assess students' knowledge of rhyme.	2.81	.93	**A**	1.52	.60	**D**	2.17	.91	D
7	The Use of English CBT can be used to ascertain students' knowledge of syllabification.	2.92	.78	**A**	1.52	.72	**D**	2.22	.99	D
8	The Use of English can assess students' knowledge of English intonation.	2.87	.94	**A**	1.44	.50	**D**	2.16	1.01	D
9	The Use of English CBT questions offer students opportunity to actually showcase their oral English ability through actual speaking.	2.38	1.03	**D**	1.36	.48	**D**	1.87	.72	D
10	Questions in the Use of English CBT are generally good for assessing identification and sound discrimination.	2.77	.94	**A**	1.45	.50	**D**	2.11	.93	D
	Cluster means	**2.81**	**.62**	**A**	**1.47**	**.28**	**D**	**2.13**	**.99**	**D**

Keys: NL=Number of Lecturers, NS= Number of Students, $\overline{x}$ =Mean, SD= Standard Deviation, $\overline{X}_o$= Overall Mean, SD_o = Overall Standard Deviation, Dec=Decision, A=Agree, D=Disagree.

Table 1 shows the mean and standard deviation of responses of lecturers and students on the suitability of Computer-Based Test (CBT) in testing oral English in the Use of English examination. The results indicate that students agree to all the items except item 9. With a cluster mean and standard deviation of (M = 2.81, SD = .62), the result shows that students agree that

the Use of English CBT is suitable for testing Oral English except that it does not offer students the opportunity to showcase their oral English ability through actually speaking. The standard deviation shows that the respondents were not far from one another in their responses and that their responses were not far from the mean.

The result in Table 1 also reveals that lecturers disagree to all the items in the cluster. The cluster mean and standard deviation for lecturers were (M = 1.47, SD= .28) respectively, which indicates that the respondents were not far from one another in their responses and their responses were not far from the mean. This result indicates that lecturers disagree that CBT is suitable for testing Oral English. The overall mean and standard deviation of (M = 2.13, SD = .99) for both lecturers and students shows that the Use of English CBT examination is not suitable for testing oral English.

Focus Group Discussion Question 1

What are you opinions about the Use of English Computer-Based Test? Do you think it suitably tests your ability in Oral English?

Table 2:

Qualitative Analysis of Focus Group Discussion Data on the Suitability of Computer-Based Test in Testing Oral English in the Use of English Examinations.

S/N.	Typical Statements From Discussants	Number of Discussants
1.	I think we are tested on oral English since we are asked to identify correct phonetic representation of vowel sounds from some options given.	1
2.	We are also asked to identify consonant sounds although it may not be explicitly stated.	1
3.	Of course there are questions that are directed to finding out if we know emphatic stress or not.	1
4.	For me, the Use of English CBT does everything in oral English just as the paper-based test.	1
5.	I do not even remember anything about sentence stress so if they asked or not during the examination I honestly cannot tell.	1
6.	It is not even feasible to ask students to produce speech; the CBT is purely multiple choice questions.	2
7.	If I should say, the CBT is better for testing oral English than PBT.	1
8.	Unlike in the paper-based test, during CBT nobody will ask you to write any transcription and this makes the examination better and easier for students.	2
9.	For me the examination is very okay, every important thing taught in the class is asked.	1
10.	I honestly do not think that the examination should be considered as not good just because it does not have actual speaking section. Besides our seminar presentation should take care of that aspect.	1
Total Number of Discussants		12

Table 2 above contains the opinions of students on the suitability of CBT for testing Oral English in the Use of English examinations. The opinions of the student discussants on Table 2 also show that all of them expressed confidence in the suitability of the CBT to test them on oral English. This shows that the position of students as found on table 1 was maintained by the discussants. However, opinion number 8 on the table shows that some students prefer the CBT in the Use of English examinations simply because they are not required to transcribe during the examinations.

Research Question 2

How suitable is CBT for testing reading comprehension in the Use of English examinations?

Table 3:

Mean and Standard Deviation of Responses of Lecturers and Students on the Suitability of Computer-Based Test for Testing Reading Comprehension in the Use of English Examinations. (ns=1200, nl=38*)*

S/N	Questionnaire items	Students			Lecturers					
		$\bar{x}$	SD	DEC	$\bar{x}$	SD	DEC	$\bar{X}_o$	SD_o	DEC
11	The Use of English CBT presents students with a reading comprehension passage that students read and answer questions from.	3.26	.77	**A**	3.10	.76	**A**	3.19	.11	A
12	The Use of English CBT measures comprehension using objective test items alone.	3.01	.73	**A**	3.23	.54	**A**	3.13	.16	A
13	The Use of English CBT assesses students' ability to reorganize text order.	3.02	.79	**A**	3.08	.64	**A**	3.06	.04	A
14	The Use of English CBT can be used to assess students' knowledge of synonyms by asking students to choose the nearest in meaning of a given word.	3.16	.77	**A**	3.31	.47	**A**	3.24	.10	A
15	The Use of English CBT can be used to assess students' knowledge of antonyms by asking students to choose the opposite in meaning of a given word.	3.26	.72	**A**	3.39	.49	**A**	3.33	.09	A
16	The Use of English CBT is appropriate for assessing students' ability to decode figurative expressions.	3.09	.74	**A**	3.39	.54	**A**	3.24	.21	A
17	The Use of English CBT measures students' ability to infer meaning from a text.	2.98	.77	**A**	3.28	.69	**A**	3.14	.21	A
18	The Use of English CBT presents students the opportunity to show the grammatical name and functions of phrases and clauses as they are used in a given passage.	2.96	.87	**A**	2.42	1.00	**D**	2.69	.38	A
19	With the Use of English CBT, students' reading speed can be adequately measured.	3.14	.89	**A**	2.97	.78	**A**	3.06	.12	A
20	The Use of English CBT reading comprehension passages adequately samples students' comprehension ability.	3.12	.87	**A**	3.15	.71	**A**	3.14	.02	A
	Cluster Means	**3.10**	**.48**	**A**	**3.13**	**.31**	**A**	**3.12**	**.17**	**A**

Keys: NL= Number of Lecturers, NS=Number of Students, $\bar{x}$=Mean, SD= Standard Deviation, $\bar{X}_o$= Overall mean, SD_o = Overall Standard deviation, Dec=Decision, A=Agree, D=Disagree.

Table 3 shows the mean and standard deviation of responses of lecturers and students on the suitability of Computer-Based Test for testing reading comprehension in the Use of English examination**.** From the results, it is evident that students agree to all the items in the cluster. Their mean responses for items 11-20 are clearly within the real limit of 2.50 – 3.49. The result therefore shows that the students agree that CBT is suitable for testing reading comprehension. The result also shows that their standard deviation ranges from 0.48 to 0.89 which shows that the respondents were not far from one another in their responses and that their responses were not far from the mean.

For the lecturers, the result shows that all the items have high mean rating except item18 which has a mean of (M = 2.42) and their standard deviation which ranges from 0.31 to 1.00 shows that the respondents were not far from one another in their responses and that their responses were not far from the mean. The overall mean and standard deviation for the entire cluster is (M = 3.12, SD = .17). The table therefore indicates that apart from its inability to present students with the opportunity to show the grammatical name and functions of phrases and clauses as they are used in a given passage, lecturers and students agree that CBT is suitable for testing reading comprehension.

Focus Group Discussion Question 2:

Do you think the Use of English CBT is really Suitable for Testing Reading Comprehension?

Table 4: *Qualitative Analysis of Focus Group Discussion Data on the Suitability of Computer-Based Test in Testing Reading Comprehension in the Use of English Examinations*

S/N.	Typical Statements from Discussants	Number of Discussants
1.	Yes, I absolutely think it is suitable.	2
2.	I believe the CBT is even better for testing reading comprehension as we are also asked questions on the texts we read that are no longer before us.	1
3.	Our knowledge of idioms is tested; we are given options to choose which one carries the right interpretation.	2
4.	It is false to say the examination does not test reading speed; if you cannot read fast there is no way you can write the examination in the first place.	2
5.	It is very obvious that the CBT can test reading speed; this is simply because the time given to attempt all 70 questions is usually very short.	1
6.	The lecturers will not give us the test if they did not think it is suitable. So it is suitable for testing it.	2
7.	My opinion on this is that CBT is very good for testing comprehension abilities of students. This is because if you have not comprehended the text, you will not be able to answer questions that come from it.	2
Total Number of Discussants		12

Table 4 presents the opinions from the focus group discussion on the suitability of computer-based test for testing Reading Comprehension. The typical statements on the table clearly show that the discussants agree that the Use of English CBT is very suitable for testing their reading comprehension abilities.

Research Question 3:

What is the suitability of CBT for testing grammar in the Use of English examinations?

Table 5:
Mean and Standard Deviation of Responses of Lecturers and Students on the Suitability of Computer-Based Test for Testing Grammar in the Use of English Examinations. (ns=1200, nl=38)

S/N	Questionnaire items	Students			Lecturers					
		$\overline{x}$	SD	DEC	$\overline{x}$	SD	DEC	$\overline{X}_o$	SD_o	DEC
21	With the Use of English CBT students' knowledge of tense can be assessed.	3.03	.80	**A**	3.21	.62	**A**	3.12	. 81	A
22	The Use of English CBT is appropriate for testing students' understanding of sentence types.	2.98	.77	**A**	3.23	.64	**A**	3.12	.77	A
23	Through the Use of English CBT students' knowledge of concord agreement can be evaluated.	2.90	.80	**A**	3.23	.75	**A**	3.07	.81	A
24	The Use of English CBT is suitable for understanding students' knowledge of inflection patterns.	2.97	.75	**A**	3.47	.76	**A**	3.22	.76	A
25	The questions in the Use of English CBT examination are appropriate for assessing students' knowledge of word classes.	3.08	.75	**A**	3.28	.51	**A**	3.19	.75	A
26	The questions in the Use of English examination are appropriate for understanding students' knowledge of verbal tenses.	3.02	.75	**A**	3.36	.58	**A**	3.20	.75	A
27	There are questions in the examination that require students' to identify grammatical name and functions of phrases.	3.08	.83	**A**	3.16	.72	**A**	3.12	.82	A
28	Questions on grammar are only objective questions therefore CBT is appropriate.	2.82	.94	**A**	3.18	.65	**A**	3.01	.93	A
	Cluster Means	**2.98**	**.50**	**A**	**3.26**	**.46**	**A**	**3.13**	**.07**	**A**

Keys: NL=Number of Lecturers, NS= Number of Students, $\overline{x}$=Mean, SD= Standard Deviation, $\overline{X}_o$= Overall Mean, SD_o = Overall Standard deviation, Dec=Decision, A=Agree.

Table 5 shows the mean and standard deviation of responses of lecturers and students on the suitability of Computer-Based Test for testing grammar in the Use of English examination. The table shows that all the items have high mean scores that are within the limits of 2.50 – 3.49 for both lecturers and students. The standard deviation for the students and lecturers ranges from 0.75 to 0.94 and 0.51 to 0.76, respectively, which shows that the respondents were not far from one another in their responses and that their responses were not far from the mean. With the overall mean and standard deviation of (M = 3.13, SD = .07), the result therefore indicates that the Use of English CBT is very suitable for testing grammar.

Focus Group Discussion Question 3

Do you think the Use of English CBT is Suitable for Testing Grammar?

Table 6:

Qualitative Analysis of Focus Group Discussion Data on the Suitability of Computer-Based Test in Testing Grammar in the Use of English Examinations.

S/N.	Typical Statements from Discussants	Number of Discussants
1.	The Use of English CBT is very suitable for testing grammar; this is because there are always questions meant to test students' understanding of grammatical aspect of language such as parts of speech.	3
2.	My thought on this is that the examination is very suitable for testing grammar. This is shown in the fact that there are a lot of questions that are grammar related.	1
3.	The questions on grammatical names and functions are even made practical in the examination. For instance, in the examination you are now asked to identify them and not define or explain them.	2
4.	I was lucky to be in class the day our lecturer taught concord and there were several questions on concord error and correction in the examination.	1
5.	For me, the examination is very suitable for testing grammar. This is because during the examination, you are not asked to define noun or verb, like you did in secondary school rather you are now required to identify them and their right uses in sentences.	1
6.	My opinion on the suitability of CBT for testing grammar is that the examination is very much suitable. This is because for grammar questions which are often similar, the objective test nature of the examination makes it easier for lecturers to make the options tricky so as to find out students who truly know the answer.	2
7.	Honestly, the CBT is very suitable for testing grammar. The objective nature of the questions simply makes it easier for grammar based questions.	2
	Total Number of Discussants	12

Table 6 contains the opinions of students from the focus group discussion on the suitability of CBT for testing Grammar. From the table, it is evident that the students expressed great satisfaction in the fact that the CBT grammar questions are application oriented. Over all, the data on Table 6 clearly shows that the discussants agree that the CBT is suitable for testing grammar.

Research Question 4

How suitable is CBT for Testing Writing Skill in the Use of English Examinations?

Table 7:

Mean and Standard Deviation of Responses of Lecturers and Students on the Suitability of Computer-Based Test for Testing Writing Skill in the Use of English Examinations. (ns=1200, nl=38)

S/N	Questionnaire items	Students			Lecturers					
		$\bar{x}$	SD	DEC	$\bar{x}$	SD	DEC	$\bar{X}_o$	SD_o	DEC
29	The Use of English CBT allows plenty of time for students to express themselves through writing.	2.02	.73	**D**	1.50	.50	**D**	1.76	.37	D
30	The Use of English CBT writing task are essay response questions.	2.27	.69	**D**	1.42	.50	**SD**	1.85	.61	D
31	The Use of English CBT questions are only capable of getting information on students' knowledge of components of the writing process.	2.25	.65	**D**	1.63	.67	**D**	1.95	.44	D
32	Through the Use of English CBT, student's abilities in technical writing such as memo, minutes are measured.	2.25	.65	**D**	1.55	.55	**D**	1.90	.50	D
33	Students' responses in the Use of English CBT can be graded in terms of knowledge of content.	2.11	.86	**D**	1.52	.55	**D**	1.82	.41	D
34	Students' responses in the Use of English CBT can be graded in terms of their ability to organize an essay.	2.07	.85	**D**	1.42	.50	**SD**	1.75	.46	D
35	Students' responses in the Use of English CBT can be graded in terms of expression ability in English language.	2.07	.84	**D**	1.47	.50	**SD**	1.78	.43	D
36	Students' responses in the Use of English CBT can be graded in terms of the knowledge of mechanics (such as punctuation).	2.29	.62	**D**	1.68	.70	**D**	1.99	.43	D
37	The texts produced by students can be properly scored using automated writing analysis.	2.40	.58	**D**	1.57	.64	**D**	1.99	.59	D
	Cluster Means	**2.19**	**.40**	**D**	**1.53**	**.22**	**D**	**1.86**	**.07**	**D**

Keys: NL= Number of Lecturers, NS= Number of Students, $\bar{x}$ =Mean, SD= Standard Deviation, X_o = Overall Mean, SD_o = Overall Standard deviation, Dec=Decision, D=Disagree, SD=Strongly Disagree.

Table 7 shows the mean and standard deviation of responses of lecturers and students on the suitability of Computer-Based Test for writing skill in the Use of English examination. From the table, it is evident that both respondents disagree with all the items in the cluster. The students have mean scores ranging from (2.07) to (2.40) and standard deviation ranging from (0.50) to (0.70). With a cluster mean and standard deviation of (M = 2.19, SD = 40) respectively.

For lecturers, the table also shows that they disagree with all the items in the cluster. The table shows very low mean scores with standard deviation which ranges from 0.37 to 0.59, indicating that the respondents were not far from one another in their responses and that their responses were not far from the mean. The cluster mean and standard deviation is (M = 1.53, SD

= .22) respectively. The overall mean is also low at (M = 1.86, SD = .07). Therefore, the result points to the fact that the Use of English CBT is not suitable for testing the writing skill.

Focus Group Discussion Question 3:

What do you think about the Use of English CBT as it concerns its Suitability for Testing Writing Skill?

Table 8:

Qualitative Analysis of Focus Group Discussion Data on the Suitability of Computer-Based Test in Testing Writing Skill in the Use of English Examinations.

S/N.	Typical Statements from Discussants	Number of Discussants
1.	The truth of the matter is that the Use of English CBT cannot test writing. In fact, the writing aspect is conveniently removed during the examination.	1
2.	I honestly do not think there is a way someone can be tested on writing using computer.	1
3.	Even if we are to be tested on writing during the CBT, I do not think it will be favourable because many of us do not know how to use the keyboard.	1
4.	We live in a digital world now, and we as students should be made to embrace these digital changes whether favourable or unfavourable.	1
5.	Computer and everything in it is taking over the world, so if it entails that students should take it in the in examination, students will have no choice but to go and learn it.	2
6.	The major issue on CBT's inability to test writing is the fact that we are made to write a separate exam to cover the writing part. This process is often stressful.	1
7.	Another great issue that bothers me is the issue of missing script which they bring back by asking us to write the writing skill part.	2
8.	During the paper based test , we are asked to choose questions from speech, letter, memorandum or article to write. This is not done in the CBT.	1
9.	Since a suitable writing test requires assessing students' knowledge of punctuation, then CBT is not suitable for testing writing.	1
10.	In the Use of English CBT, there is nothing at all on writing, be it components of writing or the writing itself.	1
	Total Number of Discussants	**12**

Table 8 presents the opinions of students on the suitability of Computer-Based Test for writing skill in the Use of English examination. The table clearly indicates that the discussants disagree that CBT is suitable for testing writing skill. From the table, it is also evident that the students are not happy with the fact that they are made to write another examination separately

so as to assess them on writing. Majority of the discussants advocated that there should be a way of testing them on writing using the CBT system so as to prepare them for the ever changing digital society we live in.

Research Question 5
What is students' perception of the use of CBT in the Use of English examinations?

Table 9:
Mean and Standard Deviation of Responses of Students on their Perception of Computer-Based Test in the Use of English Examinations. (ns=1200)

S/N	Questionnaire items	Students $\bar{x}$	SD	DEC
38	The Use of English CBT I wrote is drawn from what I was taught in class.	2.96	.79	**A**
39	I believe using CBT will improve my performance on Use of English.	2.89	.85	**A**
40	I like the CBT interface because it is very easy to navigate.	3.02	.83	**A**
41	I am happy that CBT is compulsory in my school because it places me far above my colleagues from other universities.	2.98	.87	**A**
42	There is always a member of staff ready to help whenever I need help during the Use of English CBT.	2.85	.83	**A**
43	During the Use of English CBT, the environment is always quiet and this helps me a lot.	2.97	.74	**A**
44	I like the Use of English CBT because the questions are often free of errors.	2.81	.83	**A**
45	I feel I will not perform very well because of the time limitation in the Use of English CBT.	2.78	.89	**A**
46	Students' are often trained before the Use of English CBT and this helps me understand how the examination will be conducted.	2.23	.65	**D**
47	I am happy about the Use of English CBT because it helps in making examination results to be published really fast.	3.08	.82	**A**
48	The Use of English CBT is often confusing because some questions are mostly unrelated to what we were taught in class.	2.98	.90	**A**
49	I use CBT simply because my University requires me to use it for my Use of English examination.	3.02	.73	**A**
50	Use of English CBT is very tiresome due to the rigorous process of calling students in batches.	2.89	.84	**A**
51	I believe the numbers of computers available in my school is not enough to cater for smooth CBT examinations.	2.72	.91	**A**
52	The Use of English CBT is done in very small halls and this increases cheating.	2.52	1.08	**A**
	Cluster Mean	**2.89**	**.40**	**A**

Keys: NS= Number of Students, $\bar{x}$=Mean, SD= Standard Deviation, A=Agree, D=Disagree, Dec=Decision.

Table 9 shows the mean and standard deviation of responses of students on their perception of the use of Computer-Based Test in the Use of English examinations. The result reveals that students agree to all the items on the table except item 46. Unlike other items that have means within the limit of 2.50 – 3.49, item 46 has mean score of (2.23). The standard

deviation of the items also falls within the range of (.65) to (1.08,) which indicates that the respondents were not far from one another in their responses and that their responses were not far from the mean. The table clearly indicates that apart from the few negative items (items 48, 49 50, 51 and 52), students have positive perception about the Use of English CBT examination.

Focus Group Discussion Question 5:
Generally, what are your perceptions about the Use of English CBT

Table 10:
Qualitative Analysis of Focus Group Discussion Data on Students' Perception of their Use of English Computer-Based Test.

S/N.	Typical Statements From Discussants	Number of Discussants
1.	I really like that the examination is computer based because it helps reduce the burden of having too much to read.	1
2.	I am very happy that it is compulsory in my school. Computer rules the world and I am glad to be a part of the revolution.	1
3.	I love the CBT interface; you can easily navigate though the whole examination by simply clicking 'next'.	1
4.	This examination is the best for us since it removes the issue of missing scripts.	1
5.	I really love this examination because to me, it is personalized. If you come and sit on your computer and it is not malfunctioning, you will just write in peace and go.	1
6.	The only issue that bothers me is the issue of time. The time is usually too short.	1
7.	I am really happy that we are using the computer to write not only English examination but other examinations. This gives me an edge above my peers.	1
8.	For some of us, JAMB is the only computer-based examination we have written. So the fact that students get no training before the Use of English CBT is really not good.	2
9.	The small number of computers makes the examination to be written in batches and this increases cheating since some students can come out and tell their friends from other faculties waiting for their turns what the examination questions look like.	1
10.	After GSP 101, I was really worried about GSP 102 because my department had to wait till 7pm to write and I was so exhausted after it.	1
11.	I love the fact that the examination is usually done in the library. This ensures that the environment is quiet and good for the CBT.	1
	Total Number of Discussants	**12**

Table 10 shows the opinions of students from the focus group discussion on their perception of the Use of English CBT. The table indicates that apart from complaining about inadequate facilities such as halls and computers, the students expressed positive perception about the Use of English CBT. This shows that the discussants' opinions tallies with students' stand point as contained in table 9.

Research Question 6: What are the challenges in using CBT in the Use of English examinations?

Table 11: ***Mean and Standard Deviation of Responses of Students, Lecturers and ICT staff on the Challenges in Using Computer-Based Test in the Use of English Examinations.*** (ns=1200, nl=38, ni=74)

		Students			Lecturers			ICT staff					
S/N	Questionnaire items	$\bar{x}$	SD	DEC	$\bar{x}$	SD	DEC	$\bar{x}$	SD	DEC	$\bar{X}_o$	SD_o	DEC
53	There is often power failure during the Use of English CBT.	2.66	.93	**A**	3.07	.99	**A**	1.87	.81	**D**	2.94	.24	A
54	The Uninterrupted Power Supply (UPS) does not last long enough after a power outage during the Use of English CBT.	2.51	.90	**A**	2.97	.63	**A**	2.16	1.03	**D**	2.82	.27	A
55	The school's standby generator does not function well during the Use of English CBT.	2.56	.95	**A**	2.81	.98	**A**	1.47	.57	**SD**	2.73	.14	A
56	Candidates often wait for others to finish before taking their own examinations turn due to inadequacy of computers	3.01	.93	**A**	3.21	.87	**A**	2.44	.98	**D**	3.15	.11	A
57	Some computers do not function properly and this affects some candidates negatively during the Use of English CBT.	3.14	.82	**A**	2.97	.71	**A**	1.97	1.05	**D**	**3**.03	.10	A
58	Network fluctuations affect some students' speed during the Use of English CBT.	3.00	.94	**A**	2.94	.61	**A**	2.19	1.03	**D**	2.97	.03	A
59	There is lack of cables to connect all candidates' PCs to the server during the Use of English CBT.	2.76	.94	**A**	2.78	.57	**A**	1.29	.46	**SD**	2.78	.02	A
60	The CBT centres are not enough for testing Use of English students in a day.	3.05	.80	**A**	2.92	.63	**A**	2.10	1.08	**D**	2.96	.08	A
61	The time for examination is often made short so that other candidates can use the same venue and computers.	2.96	.85	**A**	2.78	.84	**A**	2.04	1.05	**D**	2.85	.10	A
62	There is often lack of security personnel to ensure orderliness during the Use of English CBT.	2.73	.89	**A**	2.60	.78	**A**	1.64	.78	**D**	2.65	.07	A
63	Most technical staff do not know how to develop appropriate CBT software for Use of English examinations.	2.92	.86	**A**	2.94	.73	**A**	1.85	.80	**D**	2.94	.01	A
64	Some of the technical staff do not know how to properly code Use of English CBT questions into the server.	2.87	.77	**A**	2.86	.66	**A**	1.95	.89	**D**	2.87	.01	A
65	During the Use of English CBT, the technical crews do not always seem to know how to solve PC/Internet problems.	2.76	1.01	**A**	2.78	.70	**A**	1.47	.68	**SD**	2.81	.04	A
66	Some staff cannot rectify issues such as cursor stickiness during the Use of English CBT.	2.90	.90	**A**	2.76	.71	**A**	1.79	.99	**D**	2.81	.08	A
67	The technical invigilators provided for CBT centres are not enough for helping all the students in the hall.	2.95	.83	**A**	2.76	.71	**A**	2.32	.98	**D**	3.83	.11	A
68	The CBT software is never updated because of lack of software maintenance skill.	2.76	.88	**A**	3.15	.36	**A**	1.70	.80	**D**	3.03	.23	A
69	Some examination assistants posted to supervise CBT are not able connect the computer to Ups in the case of power outage.	2.89	.88	**A**	3.15	.36	**A**	1.63	.97	**D**	3.07	.15	A
70	There is lack of knowledge about how to detect unauthorized users among technical crew.	2.90	.91	**A**	3.05	.86	**A**	1.79	.95	**D**	3.00	.08	A
71	Few technical engineers know how to rectify networking issues during examinations.	2.95	.80	**A**	2.94	.51	**A**	1.78	.01	**D**	2.95	. 01	A
72	Test administrators assigned to direct Use of English CBT do not often know how to assign users to other work stations in case of a system malfunction.	2.94	.75	**A**	2.02	.88	**D**	1.54	.68	**D**	2.33	.53	D
	Cluster Means	**2.87**	**.40**	**A**	**2.87**	**.36**	**A**	**1.85**	**.51**	**D**	**2.83**	**.12**	**A**

Keys: NL= Number of Lecturers, NS= Number of Students, NI= Number of ICT Staff, $\bar{x}$=Mean, SD= Standard Deviation, $\bar{X}_o$= Overall Mean, SD_o = Overall standard deviation, A= Agree, D=Disagree, SD=Strongly Disagree

Table 11 shows the mean and standard deviation of responses of lecturers, students and ICT staff on the challenges of using Computer-Based Test for the Use of English examinations. The results from the table show that students agree to all the items on the table. The results also indicate that lecturers agree to all the items on the table except item 72. The standard deviation for the students and lecturers ranges from 0.75 to 1.01 and 0.36 to 0.99 indicating that the respondents were not far from one another in their responses and that their responses were not far from the mean. However, the table reveals that the ICT staff disagree with all the items on the table. The standard deviation for the ICT staff ranges from 1.05 to 0.01, which also indicates that the respondents were not far from each other and their responses were not also far from the mean. The cluster mean for students, lecturers and ICT staff are (M = 2.87), (M = 2.87) and (M= 1.85) respectively and the overall mean for the cluster is (M = 2.83, SD = .12). From this table, it can be deduced that there are infrastructural as well as technical-skill challenges experienced during the Use of English CBT.

Focus Group Discussion Question 6:

What is the nature of the Challenges you encounter during the Use of English CBT

Table 12: *Qualitative Analysis of Students' Focus Group Discussion Data on their Challenges in the Use of English Computer-Based Test.*

S/N.	Typical Statements From Discussants	Number of Discussants
1.	The computers available for the examination are very few and this is a great challenge for the smooth running of the CBT.	3
2.	Due to the limited number of computers, some students are made to wait till 7pm to start their examination. This time coerces the students into finishing quickly and thereby getting poor grades.	1
3.	In my opinion we need more computers immediately.	1
4.	Another big challenge is the venue, it is too small. More venues should be built to contain more computers when they are bought.	3
5.	In my opinion, the CBT server is over loaded, that is why questions often take time to load. Schools should therefore invest in procuring more servers.	1
6.	Security is also a big challenge. People who keep their items in the examination venue and go in for the examination often lose them.	1
7.	The infrastructural challenges have to do mostly with venues and computer facilities, once these are improved upon, the examination experience will be better.	2
8.	During examination, some computers will stop working and you will find out that the invigilator will not know what to do about it.	2
9.	Sometime during GSP102 examination, my cursor stopped working, and the supposed ICT staff could not do anything to help me. It was a really saddening experience for me.	1
10.	I believe most of the staff do not know how to set up the computers for the examination. This is because you will notice that it is only some particular individual that does this even in other CBT.	1
11.	I think the ICT staff do not upload questions on time due to the fact that they lack the skill to do so. This ends up delaying the time for the examination.	2
12.	There is also the issue of registration error. Most times when one gets to the examination hall, there will be no computer bearing your registration number.	1
13.	Sometimes, if they make mistake in your registration number, before they will correct it, the time for your examination might have passed.	1
14.	The technical staff assigned for the examination that really know their job are few. It is often very difficult for them to attend to the students with issues promptly.	1
15.	The technical crew also need to check the security of the questions. Some engineering students have boasted of being able to hack into the server and get the questions.	1
16.	I honestly feel the technical-staff are not putting in their best, that is why they start fixing up computers by 7:30am for an examination slated to start by 7am.	1
17.	The direct entry students keep having the issue of their data not being uploaded to the server. This is purely a technical issue that can only be handled by ICT personnel.	1
Total Number of Discussants		**12**

Table 12 contains the opinions of students from the focus group discussion on the challenges of the Use of English Computer-Based Test. The opinions of the students confirm that

there are many challenges that hinder the success of the Use of English CBT. While some of these challenges are infrastructure related, a lot others are as a result of poor technical-skill of ICT staff managing the examination. From the responses, it is clear that the examination is plagued by inadequate venues as well as facilities such as computers. The students also decried the poor skills which the staff exhibit when they request them to help out in solving some technical related issues they encounter during the examination. A member of the FGD who happens to be a direct entry student particularly lamented that the registration details of Direct Entry (DE) students are never uploaded with that of other regular students during the Use of English examinations and even other CBTs. According to the participant, “we are made to wait while others have started writing, and we will be rushed out of the hall with these others at the end of the examination without considering if we finished or not”.

Focus Group Discussion Question 6:

What is the nature of the Challenges you think are encountered during the Use of English CBT?

Table 13: *Qualitative Analysis of ICT Staffs' Focus Group Discussion Data on the Challenge in the Use of English Computer-Based Test.*

S/N.	Typical Statements From Discussants	Number of Discussants
1.	First of all, our ICT staff possesses all knowledge and skills that is needed to run CBT.	1
2.	The three sections needed for the smooth running of CBT which are power, system and network are always up and running during examinations	3
3.	We also run a routine check on our systems before the examinations start.	3
4.	Although we could use more halls, the ones available are serving perfectly for the purpose of the examination.	4
5.	We have about 1000 computers at the moment which is very adequate for examining our students and also well above those in other schools.	2
6.	We have really improved over the years. For instance, we no longer upload questions for lecturers but they upload it themselves.	3
7.	We always assign enough technical staff that know their duty to the examination venues.	3
8.	Our technical crew is always ready, what we need to see are lecturers who will abide by school regulations and come in to upload their questions promptly.	4
9.	We would also love to see changes on trust issues between lecturers and our staff. There have been cases where lecturers refuse for us to help them upload questions because they do not trust us to do so for them.	3
10.	Challenges we experienced during Use of English examinations are often purely managerial. Lecturers do not do a good job in conducting their students in an orderly manner during the examination.	3
11.	For us to work better, I think we should be allowed to handle everything concerning CBT.	2
Total		4

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Table 13 contains the opinions of ICT staff on the challenges encountered during the Use of English Computer-Based Test. The table indicates that the discussants disagree that there are any serious infrastructural or technical-skill challenges experienced during the Use of English computer-based test. Their opinions as shown in the table points to the fact that the challenges often experiences during CBT is more managerial than technical. The respondents are of the view that all the aspects needed to render an effective CBT such as power, system and network are completely in good conditions for the examination

Hypotheses Testing

Ho_1: There is no significant difference in the mean responses of lecturers and students on the suitability of CBT for testing oral English in the Use of English examinations.

Table 14: *Summary of the t-test analysis of the mean responses of lecturers and students on the suitability of CBT for testing oral English in the Use of English examinations.*

Oral English	N	$\bar{X}$	SD	Sig.	t-cal	Df	Sig.(2-tailed)	Mean Difference	Remark
Students	1176	2.81	.62						
Lecturers	38	1.47	.29	.000	26.91	49.1	.000	1.34	S

Keys: $\bar{X}$= Mean, SD=Standard Deviation, df= degree of freedom, Sig=Significance

The data on Table 8 above reveals that the t (49.1) = 26.91, P = .000 level which is below the p-value of 0.05 set for the study, indicating that there is a significant difference in the mean responses of students and lecturers on the suitability of CBT for testing oral English in the Use of English examination. Therefore, the null hypothesis of no significant difference is rejected. Table 8 also shows that the higher mean score of (2.81) belongs to the students while the lower mean score of (1.47) belongs to the lecturers.

Ho_2: There is no significant difference in the mean responses of lecturers and students on the suitability of CBT for testing reading comprehension in Use of English examinations.

Table 15: *Summary of the t-test analysis on the mean responses of lecturers and students on the suitability of CBT for testing reading comprehension in the Use of English examinations.*

Reading Comprehension	N	$\bar{X}$	SD	Sig.	t-cal	Df	Sig.(2-tailed)	Mean Difference	Remark
Students	1176	3.11	.49						
Lecturers	38	3.14	.32	.002	-.552	42.827	.58	-.029	NS

Keys: $\bar{x}$ = Mean; SD: Standard Deviation; df= degree of freedom, Sig=Significant, NS=Not significant

The data presented on Table 9 above reveals that the t (42.837) = -.552, P = .58 which is above the p-value of 0.05 set for the study, indicating that there is no significant difference in the mean responses of students and lecturers on the suitability of CBT for testing reading comprehension in the Use of English examination. Therefore, the null hypothesis of no significant difference is not rejected. The table also reveals that lecturers recorded a higher mean score of (3.14) against (3.11) of the students.

Ho_3: There is no significant difference in the mean responses of lecturers and students on the suitability of CBT for testing grammar in the Use of English examinations.

Table 16: *Summary of the t-test analysis on the mean responses of lecturers and students on the suitability of CBT for testing grammar in the Use of English examinations***.**

Grammar	N	$\bar{X}$	SD	Sig.	t-cal	Df	Sig.(2-tailed)	Mean Difference	Remark
Students	1176	2.99	.50						
Lecturers	38	3.27	.46	.355	-3.32	1212	.001	-.27	NS

Keys: $\bar{X}$= Mean; SD: Standard Deviation; df= degree of freedom, Sig=Significant, NS=Not significant

The data presented on Table 10 reveals that the t (1212) = -3.32, P = .001 which is above the p-value of 0.05, indicating that there is no significant difference in the mean responses of students and lecturers on the suitability of CBT for testing grammar in the Use of English examination. Therefore, the null hypothesis of no significant difference is upheld. The table also shows that lecturers recorded a higher mean score of (3.27) against (2.99) of the students.

Ho_4: There is no significant difference in the mean responses of lecturers and students on the suitability of CBT for testing writing skill in the Use of English examinations.

Table 17: *Summary of the t-test analysis on the mean responses of lecturers and students on the suitability of CBT for testing writing skill in the Use of English examinations.*

Writing skill	N	$\bar{X}$	SD	Sig.	t-cal	Df	Sig.(2-tailed)	Mean Difference	Remark
Students	1176	2.19	.41						
Lecturers	38	1.53	.23	.000	17.25	45.034	.000	1.36	S

Keys: $\bar{x}$= Mean; SD: Standard Deviation; df= degree of freedom Sig=Significant, S= significant

The data presented on Table 11 shows that the t (45.03) = 17.25, P = .000 which is below the p-value of 0.05, indicating that there is a significant difference in the mean responses of students and lecturers on the suitability of CBT for testing writing skill in the Use of English examination. Therefore, the null hypothesis of no significant difference is rejected. The table also reveals that students recorded a higher mean score of (2.19) against (1.53) of the lecturers.

Ho_5: There is no significant difference in the mean responses of ICT personnel, lecturers and students on the challenges in using CBT in the Use of English examinations.

Table 18: *Summary of ANOVA on significant difference in the mean responses of ICT staff, lecturers and students on the challenges in using CBT in the Use of English examinations.*

Challenges	Sum of Squares	Df	Mean Square	F	Sig.	eta squared
Between Groups	71.904	2	35.952	209.683	.000	0.25
Within Groups	220.324	1285	.171			
Total	292.228	1287				

Keys: Df= degree of freedom Sig=Significant, S= significant

Table 18 shows the F calculated value on the responses of lecturers, students and ICT staff on the challenges of using CBT in the Use of English examination. The F (2, 1285) = 209.68, P = .000 is significant at .00 level which is below the p-value of .05 indicating that there is a significant difference in the mean responses of lecturers, students and ICT staff on the challenges of using CBT in Use of English examination. The eta square also indicates that the variation among the group of respondents is at 0.25, which indicates a significant different among them. Consequently, the null hypothesis of no significant difference is rejected.

Table 19: *Summary of post hoc test on significant difference in the mean responses of ICT Staff, lecturers and students on the challenges in using CBT in the Use of English examinations.*

Tukey HSD,

(I) Challenges	(J) Challenges	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
ICT staff	Lecturers	-.96308	.08264	.000	-1.1570	-.7692
	Students	-1.01626	.04963	.000	-1.1327	-.8998
Lecturers	ICT staff	.96308	.08264	.000	.7692	1.1570
	Students	-.05318	.06825	.716	-.2133	.1070
Students	ICT staff	1.01626	.04963	.000	.8998	1.1327
	Lecturers	.05318	.06825	.716	-.1070	.2133

*. The mean difference is significant at the 0.05 level.

Table 19 shows the direction of the difference in the responses of lecturers, students and ICT staff on the challenges of using CBT in the Use of English examination. The tukey post hoc test revealed that there was a statistically significant difference on the responses of ICT staff when compared to lecturers and students (P=.000). The result also revealed that there was no statistically significant difference on the responses of Lecturers when compared to ICT staff and students and the responses of students when compared to ICT staff and lecturers (P = .07).

Summary of the Major Findings.

The following findings were made from the study:

1. Computer-Based Test (CBT) is not suitable for testing oral English in the Use of English examination.
2. There is a significant difference in the mean responses of students and lecturers on the suitability of CBT for testing oral English in the Use of English examinations.
3. Students and lecturers agree that the Use of English Computer-Based Test is suitable for testing reading comprehension.
4. There is no significant difference in the mean responses of students and lecturers on the suitability of CBT for testing reading comprehension in the Use of English examinations.

5. Students and lecturers agree that the Use of English Computer-Based Test is very suitable for testing grammar.
6. There is no significant difference in the mean responses of students and lecturers on the suitability of CBT for testing grammar in the Use of English examinations.
7. Students and lecturers agree that the Use of English Computer-Based Test is not suitable for testing the writing skill of students.
8. There is a significant difference in the mean responses of students and lecturers on the suitability of CBT for testing writing skill in the Use of English examinations.
9. Students have a very positive perception of using CBT for their Use of English examination. They agree among other things that CBT has made the publishing of their results faster.
10. Students and lecturers of Use of English agree that there are infrastructural as well as technical-skill challenges hindering the smooth running of the CBT. However, the ICT staff did not agree to this.
11. There is a significant difference in the mean responses of students, lecturers and ICT staff on the challenges of using CBT in the Use of English examinations.
12. The Tukey post hoc test reveals that the mean difference in the responses of ICT staff on the challenges of using CBT in the Use of English examinations when compared to lecturers and student's responses is low. However, the mean difference in the responses of Lecturers when compared to ICT staff and also the responses of students when compared to ICT staff and lecturers is high.

CHAPTER FIVE

DISCUSSION OF RESULTS, CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS AND SUMMARY

In this chapter discussions of the results of the study are made. The chapter also embodies the conclusions, educational implications of the findings, recommendations, limitations of the study, suggestions for further studies and summary of the study.

Discussion of Results

The discussion of the results of the study will be presented in the following order:

1. Suitability of CBT for Testing Oral English in the Use of English Examinations.
2. Suitability of CBT for Testing Reading Comprehension in the Use of English Examinations.
3. Suitability of CBT for Testing Grammar in the Use of English Examinations.
4. Suitability of CBT for Testing Writing in the Use of English Examinations.
5. Students' Perception of the Use of CBT in the Use of English Examinations.
6. Challenges in Using CBT in the Use of English Examinations.

Suitability of CBT for Testing Oral English in the Use of English Examinations

The results on the suitability of computer-based test for testing oral English in the Use of English examination showed that even though the items were positive, the overall mean score of lecturers and students was low, pointing to the fact that the Use of English computer-based test is not suitable for testing oral English in Use of English examination. It is important to note that, going by students' responses for the individual items that make up cluster A, the findings show that students agreed that CBT is suitable for testing them in oral English but lecturers disagreed. The findings of the study also showed that there is a statistically significant difference in the

mean responses of students and lecturers on the suitability of CBT in the Use of English examinations. The reasons why CBT is not considered suitable by lecturers may be because of the fact that the examination questions are not able to determine students' knowledge of sounds, syllabification, rhyme and other pertinent aspects of oral English. More so, the fact that the CBT examination does not offer students actual opportunity to speak is an issue of serious concern. Data got from the focus group discussion held with the students also reveals that the students agreed that the Use of English CBT is suitable for testing their oral English skill. This decision by students may be due to the fact that the CBT examination eliminates for them the snags often associated with oral English examinations such as transcription. In fact, during the focus group discussion, one particular participant stressed the fact that CBT is generally easier and that is the major reason why they would love to continue using the mode for their oral English examination.

The result of this study agrees with the finding of Yu and Lowe (2009) where it was reported that language teachers believed that the construct validity of the computer-based test used to assess speaking is still questionable and this issue must be fully taken care of before CBT can be fully instituted to replace the former mode of testing which is PBT. The finding of the study on oral English however disagrees with the findings of Shi (2012). The study which explored the anxiety of students when taking CBT in oral English revealed that students were highly anxious about and during the computer-based examination. However, from the focus group discussion data it was revealed that students who write Use of English CBT are in fact better relaxed when writing oral English using CBT. From these findings, the researcher is of the view that the Use of English CBT is not suitable for testing oral English. This is because; the only basis for judging otherwise by students is simply because the examination mode is easier for them and not because it can actually test their oral English ability.

Suitability of CBT for Testing Reading Comprehension in the Use of English Examinations

The findings of this study show that the respondents all agree that the Use of English CBT is suitable for testing reading comprehension. The focus group discussion data also showed that students are comfortable with the way their reading ability is tested in the CBT examination. The results of the study also show that there is no statistically significant difference in the mean responses of lecturers and students on the suitability of CBT for Use of English examination.

This result is in agreement with the findings of Higgins, Russell, and Hoffmann (2005) where it is reported that the majority of students who took the reading test on a computer indicated that they would prefer to take the test on computer. However, the finding of the study is not in tandem with the findings of Ackerman and Lauterman (2012) and Chen, Cheng, Chang, Zheng and Huang (2014). Ackerman and Lauterman (2012) found out that testing reading comprehension skill of undergraduate students is better done on paper than on a computer screen. Chen, Cheng, Chang, Zheng and Huang (2014), on the other hand reported that paper-based test is more efficient for testing students reading comprehension abilities than computer-based tests. The researcher therefore believes that since the result revealed that the questions asked are suitable for testing reading and the students are also comfortable with the examination mode, the Use of English CBT is suitable for testing reading comprehension.

Suitability of CBT for Testing Grammar in the Use of English Examinations

The finding of this study as it concerns the suitability of CBT for testing grammar show that both students and lecturers obtained high mean scores. The results also show that lecturers obtained higher mean score. However, this difference in mean is not found to be statistically significant. In other words, both lecturers and students are almost equal in their level of optimism about the suitability of CBT for testing grammar in the use of English examination. This is true

because they agree that CBT is suitable for gaining insight on students' knowledge of word class, sentence structure, concord and other grammatical elements of a language. During the focus group discussion held with students, they unanimously agreed that the CBT examination was very suitable for testing them on grammar.

This finding agrees with the finding of Ahmadi and Baradadi (2014). In their study, it was concluded that the use of dynamic assessment modes such as CBT can simultaneously lead to the development of the test takers' ability and provide a more comprehensive picture of learning potential in English grammar. The findings of the study also corroborate that of Long, Shin, Geeslin and Willis (2018). According to Long et al, the analysis of content validity revealed of the CBT test administered showed that the content of the test reflected the content incorporated in the course materials and curriculum. Consequently, the test is certified appropriate. A look at the results of the present study shows that the respondents all agreed to the suitability of CBT for testing word class, inflection patterns, concord agreement, sentence structure and other contents embedded in grammar. This leads the researcher to agree that the Use of English CBT is undoubtedly suitable for testing English grammar.

Suitability of CBT for Testing Writing in the Use of English Examinations

The findings of the study on this aspect show that both lecturers and students had low mean scores. The results show that the mean score of the lecturers was actually much lower than that of the students. There was also a statistically significant difference in their mean responses. Nonetheless, the finding of the study shows that the respondents did not agree that the Use of English CBT is suitable for testing the writing skill. They responded negatively to all the items presented in cluster D. At the focus group discussion, students expressed great dissatisfaction about the way their writing ability is tested. They complained particularly about the fact that due

to the unsuitable nature of the examination for testing writing skill, lecturers now make them (the students) undergo another writing part of their Use of English examination on a later date after the main examination. This puts them into examination stress all over again and re-enkindles in them the fear of missing script which they were already happy that CBT will help eliminate.

This result is in line with the findings of Duc (2016) and Kohler (2015) who found out that ESL students were not yet proficient enough in writing computer-based essays and as such CBT will not be the best medium to be utilized for high-stakes testing. Furthermore, the respondents' evident disagreement with the item which states that automated writing analysis is good for scoring students essays reechoes the stance of Abubakar and Adebayo (2014) that effective writing is based on organization, accuracy, sophistication of vocabulary and many other similar aspects that current computer systems cannot evaluate. In other words, the finding is in line with Coniam (2006) who stated that the computer cannot in any conceivable manner actually read a text but can simply act in response to words and their association with each other with no knowledge of the ideas and concepts that connect the words in significant ways. The finding of the study is however not in consonance with the findings of Connelly, Gee and Walsh (2007), Mogey, Paterson, Burk and Purcell (2010) and Chen, White, McCloskey, Soroui, & Chun (2011). These studies all reported that computer-based test for writing skill is good and hindrance to the suitability of the test is often due to external factors from the test such as lack of training for students or age of students. For instance, it was recommended by Mogey, Paterson, Burk and Purcell (2010) that institutions trying to adopt computer-based writing assessment should create avenues for practice since many of the concerns raised about typing essay-type examinations could be addressed through practice. From the foregoing, the researcher is of the view that the Use of English CBT is not suitable for testing writing.

Students' Perception of the Use of CBT in the Use of English Examinations

From the findings of this study, it is established that students of Use of English have high positive perception about the Use of English CBT. Their mean ratings for many of the items that elicited information on their perception were very high. From the findings, it is evident that students agree that: the Use of English CBT they wrote is drawn from what they were taught in class, will improve their performance on Use of English, is likeable because the CBT interface is very easy to navigate, is compulsory in their school and thus places them far above their colleagues from other universities and this made them very happy. The respondents also agreed that: during the Use of English CBT, the environment is always quiet and this helps them a lot. They liked the Use of English CBT because the questions were often free of errors. There is always a member of staff ready to help whenever they need help during the Use of English CBT and they were happy about the Use of English CBT because it helps in making examination results to be published really fast. However, the mean scores of the same respondents on some negative items in the cluster indicated a slight dislike for the testing method. For instance the results show that students disagreed that they are often trained before the Use of English CBT and this helps them understand how the examination will be conducted. Further, they agreed that the Use of English CBT is often confusing because some questions are mostly unrelated to what they were taught in class. They believe that the number of computers available in the school is not enough to cater for smooth CBT examinations and that the Use of English CBT is done in very small halls and this increases cheating.

The results of the study show that the Use of English CBT satisfies three basic tenets of the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Davis, Davis and Morris (2003). It satisfies Performance Expectancy (PE) construct since students agreed that

the examination makes them feel they will perform better. It also satisfies Effort Expectancy (EE) since data from the study showed that students liked the CBT interface because it is easy to use. More so, it satisfies Social Influence (SI) since the students agreed that they were very happy about the fact that CBT placed them high above their colleagues from other schools. The only construct remaining is that of Facilitating Condition (FE). Evidence from the results showed that students were not properly trained before the examination, that the halls are always small and that the computers on ground are not enough for the examination. From the foregoing, it is clear that apart from few but pertinent drawbacks, students have high perception of the Use of English Computer-Based Test.

The finding of the study is in consonance with the findings of Karadeniz (2009), Samson and Okon (2015), Joshua, Joshua and Ikiroma (2016), Okocha, Toluwani and Owolabi (2017) and Olafare, Akinoso, Omotunde and Annenne (2017). These researchers through their studies on students' perception of CBT found that students had positive perceptions about computer-based tests. For instance, Olafare, Akinoso, Omotunde and Annenne (2017) in their study concluded that students perceived CBT as useful, easy to use and credible and thus the level of acceptance is high. Okocha, Toluwani and Owolabi (2017) also revealed that from their study majority of students had a positive attitude towards CBT though more than 80% of respondents indicated the need for training on the use of CBT. The finding of this study is however not in agreement with that of Jimoh, Shittu and Kawu (2012) where students agreed that they have not fully accepted the Computer-based testing mode because there were many erroneous chemical formulas, equations and structures in the test items.

Challenges in Using CBT in the Use of English Examinations

From the results of the study, there are technical-skill and infrastructural challenges experienced in using CBT for Use of English examination. The result also shows that while lecturers and students agree that the Use of English CBT is bedevilled with infrastructural as well as technical-skill challenges, members of ICT staff did not agree that there were any form of infrastructural or technical-skill challenges experienced in using CBT for Use of English examination. However, it was shown that there is a statistically significant difference in the mean responses of the respondents about challenges of using CBT in the Use of English examination.

The lecturers and students agreed, among other things, that CBT halls were not enough and that the members of ICT staff assigned to examination venues lack basic knowledge. The ICT staff according to their responses did not share in these views. The responses of ICT staff when gauged with their responses during the focus group discussion show that truly, these set of respondents strongly believe that the challenges faced in Use of English CBT are not technical-skill based but managerial. A member of the CBT management team as well as a system analyst at the ICT unit each decried the unruly behaviour lecturers display during the Use of English examination. According to them, the lecturers never bring questions for uploading before the examination and even on the day of the examination, they end up not coming to the venue on time. This delays the examination and makes the students restive.

The findings of the study are in consonance with the findings of Abubakar and Adebayo (2014) who in their research reported that that the adoption of CBT in Nigeria is faced with seven critical challenges of which economic factor, security, software; poor ICT culture, policy and implementation; and power failure are all a part. Results of the study also reecho that of Onyibe, Nwanchi-Ikpor and Abdulkareem (2015). According to them, gross inadequacy of ICT

infrastructure in the country is a major challenge to the smooth delivery of CBT in Nigeria. The finding also corroborates that of Olofare and Boor (2018). The authors reported that though CBT had positive influence on undergraduate students' performance, it is saddled with a lot of challenges.

Conclusions

Going by the findings of this study, the following conclusions are hereby drawn about the Use of English computer-based test. Firstly, the Use of English computer-based tests examination is not suitable for testing oral English and it is not also suitable for testing the writing skill. However, the Use of English CBT is suitable for testing reading comprehension and grammar. Furthermore, students of Use of English have positive perception about their use of English CBT examination and would love to continue using it for their examinations if few challenges pertaining to halls and time can be addressed. Lastly, members of ICT staff who develop and manage the CBT examination believe that they try their best, but the students and lecturers who are directly making use of the system still encounter some challenges, hence it can be concluded that there are some technical skill and infrastructural challenges that need to be taken care of during the Use of English computer-based test.

Educational Implications

Following the conclusions drawn from the findings, the study will have the following educational implications for undergraduate students, lecturers, National Universities Commission (NUC) and Information Technology (IT) experts.

Firstly, since the Use of English CBT has been found unsuitable for testing some aspects of the course such as writing and oral English, it implies that the continued use of the mode of testing may not be helpful in achieving the assessment purposes of the course as far as these

affected areas of the course are concerned. Hence, there is need for school authorities to ensure that necessary actions that will curb this menace as soon as possible are taken. To this end, training programmes for the lecturers whose duty it is to set these examination papers need to be conducted. This is to equip them on ways to prepare Use of English examination questions that will be suitable for testing writing skill as well as oral English.

The disparity in the response of lecturers and students on the suitability of CBT in testing oral English shows that how students view CBT differ markedly from how lecturers view CBT. These differences show that students are more attuned to test practices that do not task them, not minding whether they are dependable or not. There is therefore a need to re-orient students on the pros and cons of not being properly examined in course contents and why they should appreciate proper assessment whether it is easy for them or not.

Again, the unsuitability of the test for examining certain skills coupled with the infrastructural and technical-skill challenges found to be affecting the use of English CBT implies that the validity and reliability of the result got from the examination may be challenged or questionable. This is because; the same students who perform poorly in the examination may have different results under a different mode of testing or under improved infrastructural and technical conditions.

Furthermore, lack of training for students and their poor skill in using CBT modes implies that results got from the examination may be painting a false picture of the actual skill of the students that fall into this category. In other words, there is a high possibility that failures recorded may not be as a result of lack of knowledge of the skills tested but lack of knowledge of how to Use the CBT software to write examinations. This if not taken care of will also ultimately affect the validity and reliability of the Use of English CBT. The inability of students to perform

basic computer operations during their CBT also goes to show that the pedagogical method used by the lecturers in teaching is not thoroughly ICT oriented as specified in the National Policy on Education (2013). For if they were, the students will be fairly knowledgeable in using the technology. Hence, it is pertinent that the Use of English lecturers begin adopting ICT in the classroom as it will help to equip their students with the knowledge they will need in the examination hall.

Furthermore, the poor computer skills found to be one of the challenges of students during the examination also shows an attitude of laxity on self development on the part of students. This implies that the students are not yet attune with self-directed and independent learning which is a major 21st century skill ought to be possessed by any university student of this age. It follows that students need to understand that since several challenges abound during the Use of English CBT, they have to prepare themselves with the testing technology long before their examinations. As specified in the National Policy on Education, electronic testing in form of CBT has come to stay in the academic system and thus it is only imperative that students embrace and keep abreast with the emerging trend of language testing. Again, since they have expressed joy in the use of this medium of testing, they need to make extra personal/individual effort to ensure that the testing mode is not scrapped.

Since the CBT is suitable for some aspects but unsuitable for others, the implication is that the ICT staff responsible for developing and maintaining the software may not be knowledgeable enough to create and properly manage suitable CBT software for the course. Thus, it is important for these IT personnel to get more training and periodic retraining so as to be able to develop and manage more suitable software for the Use of English examination.

The findings of this study also have implications for the National Universities Commission. Since CBT has been found suitable for use in some aspects of the course and has also be found to be acceptable by students, shows that the commission has made the right choice by admonishing universities to incorporate CBT in their examination processes. The unsuitability for writing and oral English as reported in the findings however show that the CBT mode may still pose some form of threats to the quality of the results of the Use of English examination. Thus the commission has to take responsibility of ensuring that better ways of making sure the examination is made suitable for all aspects of Use of English is found and implemented. There is also need for the commission to quickly to intervene and look into the challenges especially as it pertains to infrastructure as it has been identified to be one of the major setbacks the examinations has been faced with.

Recommendations

In line with the findings and implications of the study, the following recommendations are made:

1. Experts in developing Use of English Computer-based tests such as Test of English as a Foreign Language (TOEFL) or International English Language Testing Services (IELTS) should be contracted to train staff on the right ways to develop a suitable computer-based English Language test. This will go a long way to ensure that the Use of English CBT examination becomes suitable for testing oral English as well as writing skill of students as it is supposed to be.
2. Webinars, conferences, seminars and workshops on how to use technology for academic purposes should be organized for the Use of English lecturers. This will help them learn

better ways of integrating ICT in the classroom and hence help them to prepare their students better for the Use of English examination.

3. The school administration in various universities in Nigeria should ensure that the length of the Use of English CBT in terms of number of questions and examination time should be increased. This will make for the inclusion of questions types which can be used to test students' writing skill and also test their actual speaking ability.
4. Lecturers of Use of English should strive to incorporate CBT strategy into the continuous assessment processes and in their modes of lecture delivery. That way, the students will be better prepared for the Computer-Based Tests.
5. Seminars and semester bulletins should be delivered to students of Use of English in order to educate them on the need to be properly examined on the Use of English. This will help them to understand that the fact that the examination is easy does not mean that it is the best way to examine the contents of the course.
6. Universities should also set up committees independent of the School of General Studies and ICT to oversee the smooth delivery of computer-based test. It will be the duty of this body to ensure that questions are submitted by lecturers when they are supposed to and that these questions are also uploaded by test administrators at the right time.
7. Effort should made by institutions to attract fund and interventions from educational bodies. This is to assist in building more halls for Computer-Based Tests and also buy more computers to accommodate more students at a go.
8. There should be a period set aside for students to receive trainings in CBT centres. That way, students will be better prepared for the examination. And since it is a week-long, any student who fails to avail himself of the opportunity cannot blame the authorities for not offering him/her adequate trainings.

9. Universities in Nigeria that use CBT should ensure that their ICT staff undergo proper training and retraining on all the skills they need for running the Use of English examination.
10. Effort should also be made by institutions to ensure steady power supply and network during CBT. This can be done by increasing the number of standby generators as well as network cables used during in the examinations.
11. National University commission needs to provide universities with adequate structures and facilities to ensure the smooth running of Computer-Based Tests. They should also set up reliable bodies that will periodically audit the quality of CBT carried out in Universities.

Limitations of the Study

The following are the limitations to the study:

1. Although the researcher tried to incorporate language skills emphasized in the Use of English, the fact still remains that the aspect of listening comprehension was left out. The conclusion drawn from the study may not be true for this area of the Use of English programme and as such it is a limitation to the generalization of the study.
2. On the challenges of CBT in the Use of English examination, the researcher only got in depth clarifications of views of students and ICT staff through the use of focused group discussion. However, this was not done with lecturers. This constitutes a limiting factor to the generalization of the results of challenges of CBT in the Use of English examination.

Suggestions for Further Studies

To further broaden the research on the suitability of computer-based test, it is suggested that studies such as the ones listed below should be carried out:

1. Suitability of computer-based tests in the Use of English examinations in Federal Universities in North East Nigeria.
2. Assessment of students' readiness for computer-based test in state owned universities in South East Nigeria.
3. Suitability of computer-based test in Natural Science examinations in universities in Nigeria.
4. A comparative study on students' performance in PBT and CBT in Federal universities in South East Nigeria.
5. Meta analysis of studies on the use of computer-based test in large scale examinations in Nigeria: Issues and prospects.

Summary of the Study

In recent times, computer-based testing has become a more preferred medium of testing students in Nigerian universities. One of the courses that students are examined on using this medium is the Use of English. Considering the skills taught in the English language and the intricacies involved in assessing them, it became imperative to determine if computer-based test is actually suitable for the Use of English examination. It is based on this that the researcher set out to determine the suitability of CBT in Use of English examination. The study also determined the perception of students about the Use of English computer-based test. The challenges faced in using CBT for Use of English examination were also explored. The study was guided by six research questions and five null hypotheses.

The concepts, theories and empirical studies relevant to the study were reviewed under conceptual framework, theoretical framework, empirical studies and summary of literature review. In the conceptual framework it was pointed out that although higher institutions are now adopting computer-based tests in their examinations, this system is capable of bringing negative or positive washback effect depending on how appropriate it is for the subject it is being used for. Thus, it was noted that the suitability of computer-based test for Use of English examination should be examined. The theoretical framework critically examined the constructs to watch out for when studying the suitability of CBT. This was done using the eight constructs of the SECTIONS model of technology selection and the four constructs of the Unified Theory of Acceptance and Use of Technology. Therefore the theoretical review provided the philosophical bedrock on which the study was based. From the review of empirical studies, it was discovered that some researchers had found CBT to be suitable for testing areas of English language such as grammar, writing and even comprehension. Several challenges of using CBT had also been identified in the past but students' perception of CBT had remained inconclusive. At the end of the review of related literature, it became clear that the researcher had no knowledge of any study within the area of the study that had been done to determine the suitability of computer-based test in the Use of English examination, thus, making the lacunae meant to be filled by the study even more glaring.

To carry out the study, the researcher adopted a descriptive survey research design. The area of the study was Federal Universities in South East Nigeria. The population figure for the study was 33, 263 and the sample size which was selected using multi-stage sampling technique was 1, 312. To collect data, two instruments, namely Questionnaire on Suitability of Computer-Based Test for Use of English Examinations (QSCBTUEE), and Focus Group Discussion Schedules (FGDS) were developed by the researcher. The instruments were face validated and

the QSCBTUEE was trial tested by administering it to 30 respondents from the University of Ilorin. Using Cronbach's Alpha coefficient method to test the reliability of the instrument, the seven clusters each yielded 0.86, 0.81, 0.84, 0.93, 0.81 and 0.75 respectively thus certifying the instrument as being very reliable for the study. After administering the instrument, the data obtained were analyzed and used to answer the research questions and test the hypotheses. The research questions were answered using mean and the hypotheses were tested using independent sample t-test and analysis of variance (ANOVA) statistics.

The findings of the study showed that the Use of English CBT is suitable for testing grammar and reading comprehension but is not suitable for testing oral English and writing. From the hypotheses, there was significant difference in the mean responses of students and lecturers on the suitability of CBT for testing oral English and writing skill. The results also indicated that students had a very positive perception on using CBT for their Use of English examination and would love to keep using it. Furthermore, the study revealed that students and lecturers of Use of English agreed that there were infrastructural challenges hindering the smooth running of the CBT but the ICT staff disagreed. The results also showed significant difference in the mean responses of lecturers, students and ICT staff on the challenges of using CBT in Use of English examination.

From the discussion of the results, conclusions were drawn and educational implications of the findings of the study were also enumerated. It was recommended that universities invite experts in setting English Computer-Based Tests to train the Use of English lecturers on better ways to set the examinations to make it suitable for the skills taught in the course and that universities should ensure that their ICT staff receive proper training and retraining on all the skills they need for running the Use of English examination. It was also recommended, among

other things, that institutions should not fold their hands and wait on the government but go out and source for funds and interventions that will ensure that more infrastructures will be put in place for the purpose of Use of English examination.

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APPENDIX A

QUESTIONNAIRE ON THE SUITABILITY OF COMPUTER-BASED TEST IN THE USE OF ENGLISH EXAMINATIONS (QSCBTUEE).

CLUSTER A: Suitability of CBT for testing oral English in the Use of English examination					
S/N	ITEM STATEMENT	SA	A	D	SD
1	The Use of English CBT is appropriate for determining students' knowledge of vowel sounds.				
2	The Use of English CBT is appropriate for determining students' knowledge of consonant sounds.				
3	The Use of English CBT is appropriate for determining students' knowledge of primary stress placement in sentences.				
4	The Use of English CBT is appropriate for determining students' knowledge of secondary stress placement in sentences.				
5	The Use of English CBT is suitable for assessing students' knowledge of emphatic stress				
6	The Use of English CBT can appropriately be used to assess students' knowledge of rhyme.				
7	The Use of English CBT can be used to ascertain students' knowledge of syllabification.				
8	The Use of English can assess students' knowledge of English intonation.				
9	The Use of English CBT questions offer students opportunity to actually showcase their oral English ability through actual speaking.				
10	Questions in the Use of English CBT are generally good for assessing identification and sound discrimination.				
CLUSTER B: Suitability of CBT for testing reading comprehension in the Use of English examination.					
	ITEM STATEMENT	**SA**	**A**	**D**	**SD**
11	The Use of English CBT presents students with a reading comprehension passage that students read and answer questions from.				
12	The Use of English CBT measures comprehension using objective test items alone.				
13	The Use of English CBT assesses students' ability to reorganize text order.				
14	The Use of English CBT can be used to assess students' knowledge of synonyms by asking students to choose the nearest in meaning of a given word.				
15	The Use of English CBT can be used to assess students' knowledge of antonyms by asking students to choose the opposite in meaning of a given word.				
16	The Use of English CBT is appropriate for assessing students' ability to decode figurative expressions.				
17	The Use of English CBT measures students' ability to infer meaning from a text.				
18	The Use of English CBT presents students the opportunity to show the grammatical name and functions of phrases and clauses as they are used in a given passage.				
19	With the Use of English CBT, students' reading speed can be adequately measured.				
20	The Use of English CBT reading comprehension passages adequately samples students' comprehension ability.				
CLUSTER C: Suitability of CBT for testing grammar in the Use of English examination					
	ITEM STATEMENT	**SA**	**A**	**D**	**SD**
21	With the Use of English CBT students' knowledge of tense can be assessed.				
22	The Use of English CBT is appropriate for testing students' understanding of sentence types.				
23	Through the Use of English CBT students' knowledge of concord agreement can be evaluated.				

24	The Use of English CBT is suitable for understanding students' knowledge of inflection patterns.				
25	The questions in the Use of English CBT examination are appropriate for assessing students' knowledge of word classes.				
26	The questions in the Use of English examination are appropriate for understanding students' knowledge of verbal tenses.				
27	There are questions in the examination that require students' to identify grammatical name and functions of phrases.				
28	Questions on grammar are only objective questions therefore CBT is appropriate.				
CLUSTER D: Suitability of CBT for testing writing in the Use of English examination					
	ITEM STATEMENT	**SA**	**A**	**D**	**SD**
29	The Use of English CBT allows plenty time for students to express themselves through writing.				
30	The Use of English CBT writing task are essay response questions.				
31	The Use of English CBT questions are only capable of getting information on students' knowledge of components of the writing process.				
32	Through the Use of English CBT, student's abilities in technical writing such as memo, minutes are measured.				
33	Students' responses in the Use of English CBT can be graded in terms of knowledge of content.				
34	Students' responses in the Use of English CBT can be graded in terms of their ability to organize an essay.				
35	Students' responses in the Use of English CBT can be graded in terms of expression ability in English language.				
36	Students' responses in the Use of English CBT can be graded in terms of the knowledge of mechanics (such as punctuation).				
37	The texts produced by students can be properly scored using automated writing analysis.				
CLUSTER E: Students' perception of the use of CBT in the Use of English examinations					
	ITEM STATEMENT	**SA**	**A**	**D**	**SD**
38	The Use of English CBT I wrote was drawn from what I was taught in class.				
39	I believe using CBT will improve my performance on Use of English.				
40	I like the CBT interface because it is very easy to navigate.				
41	I am happy that CBT is compulsory in my school because it places me far above my colleagues from other universities.				
42	There is always a member of staff ready to help whenever I need help during the Use of English CBT.				
43	During the Use of English CBT, the environment is always quiet and this helps me a lot.				
44	I like the Use of English CBT because the questions are often free of errors.				
45	I feel I will not perform very well because of the time limitation in the Use of English CBT.				
46	Students' are often trained before the Use of English CBT and this helps me understand how the examination will be conducted.				
47	I am happy about the Use of English CBT because it helps in making examination results to be published really fast.				
48	The Use of English CBT is often confusing because some questions are mostly unrelated to what we were taught in class.				
49	I use CBT simply because my University requires me to use it for my Use of English examination.				

50	Use of English CBT is very tiresome due to the rigorous process of calling students in batches				
51	I believe the numbers of computers available in my school is not enough to cater for smooth CBT examinations.				
52	The Use of English CBT is done in very small halls and this increases cheating				

CLUSTER F: Challenges in using CBT in Use of English examinations.

	ITEM STATEMENT	**SA**	**A**	**D**	**SD**
53	There is often power failure during the Use of English CBT.				
54	The Uninterrupted Power Supply (UPS) does not last long enough after a power outage during the Use of English CBT.				
55	The school's standby generator does not function well during the Use of English CBT.				
56	Candidates often wait for others to finish before taking their own examinations turn due to inadequacy of computers				
57	Some computers do not function properly and this affects some candidates negatively during the Use of English CBT.				
58	Network fluctuations affect some students' speed during the Use of English CBT.				
59	There is lack of cables to connect all candidates' PCs to the server during the Use of English CBT.				
60	The CBT centres are not enough for testing Use of English students in a day.				
61	The time for examination is often made short so that other candidates can use the same venue and computers.				
62	There is often lack of security personnel to ensure orderliness during the Use of English CBT.				
63	Most technical staff do not know how to develop appropriate CBT software for Use of English examinations.				
64	Some of the technical staff do not know how to properly code Use of English CBT questions into the server.				
65	During the Use of English CBT, the technical crews do not always seem to know how to solve PC|Internet problems.				
66	Some staff cannot rectify issues such as cursor stickiness during the Use of English CBT.				
67	The technical invigilators provided for CBT centres are not enough for helping all the students in the hall.				
68	The CBT software is never updated because of lack of software maintenance skill.				
69	Some examination assistants posted to supervise CBT are not able connect the computer to Ups in the case of power outage.				
70	There is lack of knowledge about how to detect unauthorized users among technical crew.				
71	Few technical engineers know how to rectify networking issues during examinations.				
72	Test administrators assigned to direct Use of English CBT do not often know how to assign users to other work stations in case of a system malfunction.				

Faculty of Education,
University of Nigeria,
Nsukka.
December 12, 2018.

Dear Sir/Madam,

INVITATION TO A FOCUS GROUP DISCUSSION

I am a postgraduate student of the above mentioned department currently undergoing a Master's Degree Programme in Language Education. The topic of my research is: Suitability Of Computer-Based Tests in the Use Of English Examinations in Federal Universities in South East Nigeria.

I humbly request that you make out time for a focus group discussion with me. This will help me obtain more in-depth data for my research.

Yours faithfully,

Agbo, Philomina Akudo.

FOCUS GROUP DISCUSSION QUESTIONS:

Brief introduction by the researcher: Good day, My name is Philomina Akudo Agbo, a post graduate student from the Department of Arts Education University of Nigeria, Nsukka. Thank you for making out time for this discussion. Can you please tell me your name and how long you have worked with ICT department on computer-based tests development and management.

Questions:

1. What are the technical skills you think members of ICT team handling CBT should possess

   Probe: does it include CBT software development, browsing skill, malware or virus detection and correction skill, networking skill, system beating detection skill and hardware maintenance such as repairing cables, plus, Ups and computers?
2. What technical skill challenges do you think ICT staff handling CBT have

   Probe: Most technical staff do not have knowledge of software development, some crew members do not know how to connect the client to server, some do not know how to debug systems, technical crew assigned to examination halls are often not enough, no maintenance knowledge, lack of networking skill.

3. Now imagine that you are part of a committee of people designing and managing CBT Use of English examination. What will you do to ensure that the examination is hitch free?

   Probe: Will it involve inviting experts in CBT software development to train staff, employing more staff and retraining some members of staff on hardware and software maintenance skills.

4. Is there anything else we haven't discussed yet that you think will be helpful for understanding the technical skill challenges in the Use of English Computer-Based Tests.

Faculty of Education,
University of Nigeria,
Nsukka.
December 12, 2018.

Dear Student,

INVITATION TO A FOCUS GROUP DISCUSSION

I am a postgraduate student of the above mentioned department currently undergoing a Master's Degree Programme in Language Education. The topic of my research is: Suitability Of Computer-Based Tests in the Use of English Examinations in Federal Universities in South East Nigeria.

I humbly request your presence and participation in a focus group discussion on students' perception of the suitability of Use of English computer-based test scheduled to take place as follows:

Date: 1th April, 2019

Time: 11am

Venue: UNN Dining

Thanks for your cooperation.

Yours faithfully,

Agbo, Philomina Akudo.

FOCUS GROUP DISCUSSION SCHEDULE 2 (FGDS)

Introduction by the Facilitator

Good day everyone, my name is Philomina Akudo Agbo, a post graduate student from the Department of Arts Education University of Nigeria, Nsukka. Thank you for making out time to participate in this focus group discussion on students' perception of the suitability of Use of English computer-based test in this university. This focus group is part of my research on Suitability Of Computer-Based Tests in the Use of English Examinations in Federal Universities in South East Nigeria that I am conducting in partial fulfillment for the award of a Masters in Language Education (M.Ed, Language Education).

You are a group of 12 students from different departments in this university and have taken the Use of English computer-based test. I will like to hear your views on the suitability of CBT for testing students' knowledge of Use of English. I will ask questions and facilitate a conversation on this.

The main aim of this exercise is simply to obtain a more in depth understanding of how students feel about the Use of English CBT and thus the unbiased opinion of everyone here is highly needed, I will like to add that there is no right or wrong answers. So, honest opinions and ideas will be very much welcome.

This session will be recorded and my research assistant will be taking notes as well to ensure that I adequately capture everybody's ideas or opinions during the conversation. However, the comments from this focus group will remain confidential and your name will not be attached to any comments you make. If you have any question, you can ask me before we begin.

FOCUS GROUP QUESTIONS

Brief introduction: Can each of you tell the group your name and department?

Questions:

1. Is the Use of English CBT examination questions related to what students are taught in class or not?

   Probe: does the examination usually contain questions on grammar such as parts of speech or sentence?, are there questions on oral English and reading comprehension? Is the writing skill part of the examination?
2. What do you think about the venue for Use of English CBT examination?
   Probe: are the venues enough? Are the desks comfortable enough? Is the environment serene enough for the examination. Are the computers in good condition and do not frustrate you during examinations?

3. If you were to go to another school that don't use CBT, what exactly will you be proud about.
   Probe: Will it be that you are digitally ahead of those over there?. Will it also involve the fact that CBT has made it easier and faster for you to assess and collate your result?

4. What would you think can be done differently during the Use of English CBT examination to make it a better experience.
   Probe: Will it involve adjusting the examination time to longer periods? Re-deployment of more ICT invigilators to the examination venue?

5. Is there anything else we haven't discussed yet that you think will be helpful for understanding how students feel about the Use of English Computer-Based Tests?

APPENDIX B

Department of Arts Education,
Faculty of Education,
University of Nigeria,
Nsukka.
December 12, 2018.

Dear Sir/Madam,

REQUEST TO VALIDATE MY INSTRUMENT FOR DATA COLLECTION

I am a postgraduate student of the above mentioned department currently undergoing a Master's Degree Programme in Language Education. The topic of my research is: Suitability Of Computer-Based Tests in The Use of English Examinations in Federal Universities in South East Nigeria. Please kindly validate this instrument to determine the appropriateness of the items in the instrument in terms of language and their ability to measure what it is supposed to measure. The purposes, research questions and hypotheses guiding the study are also attached here.

Thanks for your cooperation.

Yours faithfully,

Agbo, Philomina Akudo.

APPENDIX C

	of English CBT.				
67	The technical assistants sent to CBT centres are not enough for helping all the students in the hall.				
68	The CBT software is never updated because of lack of software maintenance skill.				
69	Some examination assistants posted to supervise CBT are not able connect the computer to Ups in the case of power outage.				
70	There is lack of knowledge about how to detect unauthorized users among technical crew.				
71	Few technical engineers know how to correct networking issues during examinations.				
72	Test administrators assigned to direct Use of English CBT do not often know how to assign users to other work stations in case of a system malfunction.				

The ~~questionnaire~~ instrument is suitable for the research topic, however, there is need to identify two groups of respondents for this study
- The Teachers
- The students

Dr Josephine Akaboy
28/01/19

The focus group discussion also need to be split for teachers and students. This will create a more suitable and authentic responses and interaction with the respondents.

67	The technical assistants sent to CBT centres are not enough for helping all the students in the hall.				
68	The CBT software is never updated because of lack of software maintenance skill.				
69	Some examination assistants posted to supervise CBT are not able connect the computer to Ups in the case of power outage.				
70	There is lack of knowledge about how to detect unauthorized users among technical crew.				
71	Few technical engineers know how to correct networking issues during examinations.				
72	Test administrators assigned to direct Use of English CBT do not often know how to assign users to other work stations in case of a system malfunction.				

Vetted and ~~[illegible]~~ Suitable for the purpose

Check in-text and see some few observations.

The "How" as noted, I cannot understand how you ~~intend~~ in tend achieving your aim.

Cluster B & C

13, 16, 17, 22, ~~and~~ 23; and 25.

Dr E. O. Ukoha

~~Date~~

20-12-18

provided for

67	The technical assistants sent to CBT centres are not enough for helping all the students in the hall.				
68	The CBT software is never updated because of lack of software maintenance skill. What is ur evidence? & what is the effect?				
69	Some examination invigilators assistants posted to supervise CBT are not able connect the computer to Ups in the case of power outage. Not necessary. Computers are supposed to be connected to UPS already.				
70	There is lack of knowledge about how to detect unauthorized users among technical crew. what is ur proof?				
71	Few technical engineers know how to correct networking issues during examinations.				
72	Test administrators assigned to direct Use of English CBT do not often know how to assign users to other work stations in case of a system malfunction. Who are the test administrators? and do they assign users?				

1- who are your respondents? from A-D

2. The questionnaire items are too many.

Vetted
Can be used for the study after effecting the corrections.

Dr. Festus U. Ngwoke
18/01/2019.

FOCUS GROUP QUESTIONS

Brief introduction: Can each of you tell the group your name and how long you have worked with ICT department on computer-based development and management.

Questions:

1. What are the technical skills you think members of ICT team handling CBT should possess

   Probe: does it include CBT software development, browsing skill, malware or virus detection and correction skill, networking skill, system beating detection skill and hardware maintenance such as repairing cables, plus, Ups and computers?
2. What technical skill challenges do you think ICT staff handling CBT have

   Probe: Most technical staff do not have knowledge of software development, some crew do not know how to connect the client to server, some do not know how to debug systems, technical crew assigned to examination halls are often not enough, no maintenance knowledge, lack of networking skill.

3. Now imagine that you are part of a committee of people designing and managing CBT Use of English examination. What will you do to ensure that the examination is hitch free?

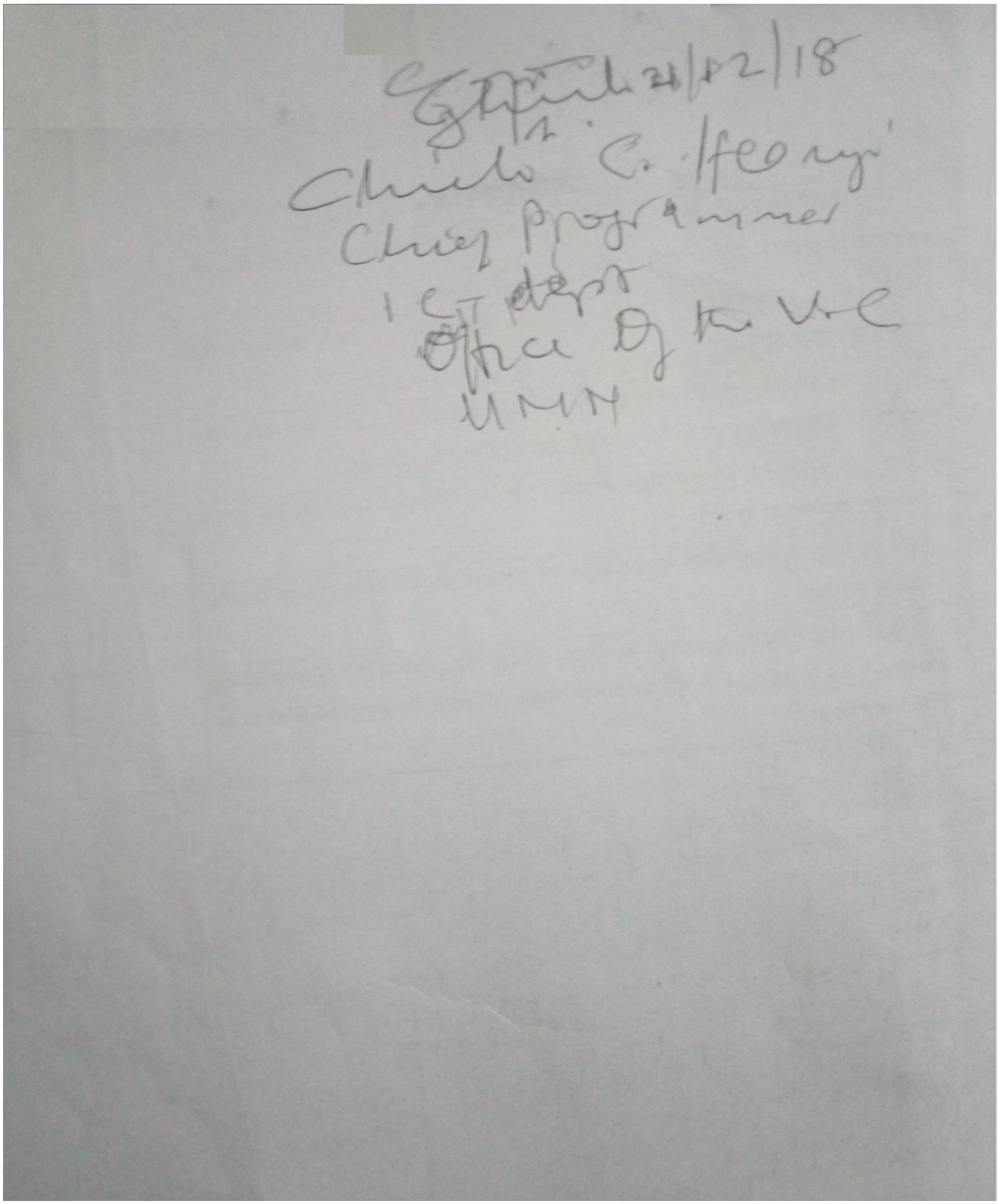
   Probe: Will it involve inviting experts in CBT software development to train staff, employing more staff and retraining the members of staff on hardware and software maintenance skills.

4. Is there anything else we haven't discussed yet that you think will be helpful for understanding the technical skill challenges in the Use of English Computer-Based Test.

Vetted.
Good for the study.
21/12/18
Dr C.S Ugwuanyi

67	The technical assistants sent to CBT centres are not enough for helping all the students in the hall.				
68	The CBT software is never updated because of lack of software maintenance skill.				
69	Some examination assistants posted to supervise CBT are not able connect the computer to Ups in the case of power outage.				
70	There is lack of knowledge about how to detect unauthorized users among technical crew.				
71	Few technical engineers know how to correct networking issues during examinations.				
72	Test administrators assigned to direct Use of English CBT do not often know how to assign users to other work stations in case of a system malfunction.				

Time ~
The response time of the technical staff
The lacky clear disparity b/w tech staff & exam officers
attitude of technical officers
attitude of exam officers
Usability of the System
Capacity/Specification of the hardware
Quality of the graphics in the app
General speed of the device
Time it takes technician to resolve a complained issue.
Compensation of time wasted during repair.
distractions from tech staff & examiners etc



APPENDIX D

Population Details

UNIVERSITIES	Students	Lecturers	ICT Staff
University of Nigeria Nsukka	10, 000	20	122
Nnamdi Azikiwe University	8, 000	10	42
Federal University Ndufu Alike Ikwo	4, 000	7	3
Michael Okpara University of Agriculture Umudike	6, 000	8	20
Federal University of Technology Owerri	5, 000	8	23
TOTAL	33, 000	53	210

Sources: www.unn.edu.ng, www.funai.edu.ng, www.unizik.edu.ng, www.mouau.edu.ng and www.futo.edu.ng

APPENDIX E

RELIABILITY INDEX

```
RELIABILITY
  /VARIABLES=item1 item2 item3 item4 item5 item6 item7 item8 item9 item10
  /SCALE('Cluster A: Suitability of CBT for testing oral English') ALL
  /MODEL=ALPHA.
```

Reliability

```
[DataSet1] C:\Users\Akudo\Documents\Philomina Akudo Agbo.sav
```

Scale: Cluster A: Suitability of CBT for testing oral English

Case Processing Summary

		N	%
Cases	Valid	25	100.0
	Excluded[a]	0	.0
	Total	25	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.865	10

```
RELIABILITY
  /VARIABLES=item11 item12 item13 item14 item15 item16 item17 item18 item19
item20
  /SCALE('Cluster B: Suitability of CBT for testing reading comprehension')
ALL
  /MODEL=ALPHA.
```

Reliability

```
[DataSet1] C:\Users\Akudo\Documents\Philomina Akudo Agbo.sav
```

Scale: Cluster B: Suitability of CBT for testing reading comprehension

Case Processing Summary

		N	%
Cases	Valid	25	100.0
	Excluded[a]	0	.0
	Total	25	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.811	10

```
RELIABILITY
  /VARIABLES=item21 item22 item23 item24 item25 item26 item27 item28
  /SCALE('Cluster C: Suitability of CBT for testing grammar') ALL
  /MODEL=ALPHA.
```

Reliability

```
[DataSet1] C:\Users\Akudo\Documents\Philomina Akudo Agbo.sav
```

Scale: Cluster C: Suitability of CBT for testing grammar

Case Processing Summary

		N	%
Cases	Valid	25	100.0
	Excluded[a]	0	.0
	Total	25	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.840	8

```
RELIABILITY
  /VARIABLES=item29 item30 item31 item32 item33 item34 item35 item36 item37
  /SCALE('Cluster D: Suitability of CBT for testing writing') ALL
  /MODEL=ALPHA.
```

Reliability

```
[DataSet1] C:\Users\Akudo\Documents\Philomina Akudo Agbo.sav
```

Scale: Cluster D: Suitability of CBT for testing writing

Case Processing Summary

		N	%
Cases	Valid	25	100.0
	Excluded[a]	0	.0
	Total	25	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.932	9

```
RELIABILITY
  /VARIABLES=item38 item39 item40 item41 item42 item43 item44 item45 item46
item47 item48 item49 item50 item51 item52
  /SCALE("Cluster E: Students' perception of the use of CBT") ALL
  /MODEL=ALPHA.
```

Reliability

```
[DataSet1] C:\Users\Akudo\Documents\Philomina Akudo Agbo.sav
```

Scale: Cluster E: Students' perception of the use of CBT

Case Processing Summary

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

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.815	15

```
RELIABILITY
  /VARIABLES=item53 item54 item55 item56 item57 item58 item59 item60 item61
item62 item63 item64 item65 item66 item67 item68 item69 item70 item71 item72
  /SCALE('Cluster F:challenges in using CBT') ALL
  /MODEL=ALPHA.
```

Reliability

```
[DataSet1] C:\Users\Akudo\Documents\Philomina Akudo Agbo.sav
```

Scale: Cluster F: Challenges in using CBT

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.755	20