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Exploring the perceived effects of online and hybrid learning on the experiences of students in Nigerian universities

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EXPLORING THE PERCEIVED EFFECTS OF ONLINE AND HYBRID LEARNING ON

THE EXPERIENCES OF STUDENTS IN NIGERIAN UNIVERSITIES

A dissertation submitted in partial satisfaction

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by

Amaechi Ugwu

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ABSTRACT

Recent years have seen an apparent increase in the popularity and acceptance of online and hybrid learning as alternative models of learning at universities and other institutions of higher education in Nigeria. However, there is doubt whether the increase in popularity and acceptance of online and hybrid learning has translated to better learning conditions or satisfaction for students and graduates of higher education. These issues among others have made online and hybrid learning models to represent an area of growing academic interest by scholars. The main purpose of this study was to explore the perceived effects of online and hybrid learning on the experiences of students in Nigerian universities.

Four research questions, which explored some aspects of learning such as experience, participation, technology, and satisfaction, were employed in the study. Further, the study utilized an embedded mixed method with a sample population of 211, which was sourced from 12 universities in Nigeria using a self-administered survey through Qualtrics. A Robust Panel Least Square Regression was carried out using STATA 16 statistical software package. The result from the analysis carried out showed that students' experience (EXP), participation of students (PAR), and technological components impact (TECH) were positively and significantly related to satisfaction of students (SAT). This implied that the targeted population was satisfied with their perceived experiences of learning engagements and procedures carried out during the cause of their program of learning in the sampled Nigerian universities. But the findings did not preclude the need for further improvements in communication technology, particularly poor Internet networks. Thus, the study concluded that the practices of online and hybrid learning in Nigerian institutions have improved from the outcome of students who participated by exploring their satisfaction. It was recommended that there should be a greater improvement in the

introduction of policy and development of online and hybrid courses by creating new ideas that

will enhance the sustainability of the online and hybrid programs in Nigerian universities.

Keywords: Experience, Hybrid, Online, Participation, Qualtrics, Satisfaction, and Technology

Chapter One: Introduction

Amartya Sen, a prominent Indian economist, philosopher and Nobel Prize winner wrote, "To build a country, build a schoolhouse" (Sen, 2002, p. 13). Education is considered as the surest approach to harnessing the full potential of the human capital for any nation. In Nigeria, this perception to education is true; unfortunately, the lived reality falls below expectation.

Similar to the situation in many other developing nations with limited resources, Nigeria has been experiencing the challenge of educating its teeming young population, particularly at the higher education level, due to limited opportunities. Following trends and paradigm shifts in higher education globally, many institutions have begun to turn to online and hybrid learning as alternative learning models to expand access to education for students who have limited or no opportunity to attend the traditional face-to-face learning model due to various reasons. As relatively new and expanding modes of education, wholly online and hybrid bring some exciting promise, particularly in the context of the unprecedented global health pandemic caused by the COVID-19. Also, shifts to online and hybrid modes raises some questions that border on the efficacy of the learning process as well as the experience for students and instructors alike. This study specifically explores students experience of online and hybrid learning in higher education system, particularly in the Nigerian universities.

Online learning and hybrid learning (hereafter referred to as online education) have been around for some decades, albeit in varying degrees of development since the invention of the internet. In the past three decades, online learning platforms have experienced tremendous growth to become part of the mainstream models of education in many parts of the world today. In fact, some scholars have likened the changes occurring in the higher education sector, due to online learning, to a quiet revolution. This paradigm shift in education is akin to a quiet

education revolution (Butler, 2012). As many scholars affirm, the shift is due to the combination of factors, especially the unique advantage of technology facilitated learning, and flexible characteristics that they provide to learners including the non- traditional students (El Mansour & Mupinga, 2007; Robinson & Hullinger, 2010).

Recent studies suggest that a few factors including flexible education opportunities and expanded access to higher education for non-traditional students account for the growth as well as the increased participation in the learning modality by students and teachers, particularly at the higher education level (Allen & Seaman, 2015; Altbach et al., 2009; El Mansour & Mupinga, 2007; Kim & Bonk, 2006; University of Oxford International Strategy Office, 2015).

Factors Driving Growth in Online Learning

Researchers have identified some of the factors responsible for driving the growth and interest in the online learning. One factor is the desire to meet the "growing demand for higher education by non-traditional students" who desire more flexibility (El Mansour, 2007, p. 242). Another factor involves the economic and financial benefits that accrue to institutions when they expand the learning platforms and programs. Additionally, there are cost-saving opportunities provided by online learning instructional models over the traditional on-campus experience for the students. For example, students who participate in online or hybrid courses or programs while incurring costs associated with remote learning such as computers, Wi-Fi data services, are generally spared the high cost of living on campus especially for international students. Similarly, the significantly improved access to electricity, broadband internet technology and relatively affordable costs of communication and learning devices in many parts of the world as well as future growth predictions support the premise that online learning will continue to increase (McDonald et al., 2016; Passerini & Granger, 2000).

Finally, in the last few months of 2020, the global health pandemic of COVID-19 virus, spurred rapid and drastic disruptions on the global education systems. This pandemic, besides causing immense loss of lives and economic devastation, necessitated an unprecedented shutdown of schools with face-to-face, on-campus learning worldwide. Faced with the current situation of forced social distancing and other new protocols, much or most of the world has turned to online models as the safest and preferred (often only) option of continuing education and work. The crisis has greatly increased the growth and accelerated the adaptation of online learning at various levels of education in order to adjust to the disruptions caused globally by the pandemic. This view is corroborated by several reports by education organizations including the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020), as well as the World Economic Forum (2020).

In Africa, and more specifically in Nigeria, the growth trend in education, while occurring at much slower pace, is similar to the experiences in other more advanced countries. The demand for university education is higher than ever before among the teeming youth population. Correspondingly, the demand for online learning has also been surging among non-traditional students who consider these alternative models of education to be flexible and more economical in achieving their goal of pursuing a university degree (Lederman, 2018; Moja, 2000). The pandemic has only intensified the demand.

As might be expected, the heightened demand for online programs has created a scramble by many traditional universities and other institutions of higher learning to position themselves as prime institutions for e-learning related programs. In addition to leveraging the opportunities provided by the aforementioned factors, some hitherto traditional (face-to-face) universities in Nigeria have begun to make foray into the online and hybrid learning. This procedural shift

could be interpreted as part of a strategic move to align with the Nigeria education policy initiatives that advocated for the development and expansion of existing distance learning models to the internet facilitated online and hybrid learning models in order to create greater access to university education for millions of young Nigerians.

Consequently, by providing the framework for alternative models of teaching and learning for students and teachers, online and hybrid learning are fast becoming part of the normal learning experiences at universities and other higher education institutions in Nigeria (Ajadi et al., 2008). However, the introduction of these alternative models of learning at universities create new challenges that require robust solutions if the goals of higher education are to be fully attained.

This study focused on the experiences of students in the higher education institutions in Nigeria, with specific focus on the development of online learning in Nigerian universities. Using an embedded mixed design, the study aimed to understand the effects of the distinct components of online learning on the experience of students. For the purpose of this research, students' experience constituted engagement with technology, peer-to peer interaction, and participation in the online learning environment. Findings from this study will contribute to a better understanding of the online learning environment in Nigeria, including strategies to further improve the experience of students taking part in online courses and programs.

Background

Four distinct elements constituted the important background context to this study. The first element involved the society's need to provide competent education. In Nigeria, this is especially true of higher education as the transformative catalyst in the country's historical development. The second context element involved changes brought about by the introduction of

new technologies in the field of communication and education during the last four decades. The third element concerned the rivalry and scramble for the higher education market share in Nigeria among existing universities and other higher institutions, and the consequent changes the rivalry and competition have brought in the education sector. The fourth element for this study involved the level of research conducted in the Nigeria online (distance) and hybrid (blended) education space.

Tertiary Education as a Catalyst for Growth and Development

The importance of good education towards the achievement of efficient and productive development of the Nigerian population cannot be overstated. Quality higher education that prepares individuals for productive and purposeful future is highly sought in Nigeria. Sadly, due to different factors including inadequate resources, bad education management system and poor policy implementation, there is a considerable gap between the number of youths desirous of education, particularly higher education (e.g., professional university studies), and the available opportunities (Ajadi et al., 2008; Olakulehin, 2008). Access to education, especially university education is still considerably limited despite the surge in the number of potential students seeking admission.

Consequently, improving the nation's education system has become pertinent; more so, because the population of Nigeria is growing at a very high rate. To change the current narrative, the country must find new and innovative ways to efficiently harness the abundant human capital for its economic and social development. According to United Nations World Population Review (2019), Nigeria's population, which currently stands at about 199 million people, has an estimated annual growth rate of 2.6% making it the seventh most populated country in the world with the projection of becoming the third most populated nation after China and India by 2050.

Like many developing nations, Nigeria has a teeming youth population desirous of good education in order to be competitive in the overcrowded domestic labor market. In addition, in the last four decades, Nigeria's education system has been largely plagued by different crises including poor funding, political interference and poor policy implementation and resource management (Moja, 2000). The outcome is an education system that has largely failed to achieve its full potential of educating the majority of the population, reducing the rate of poverty, and creating a twenty-first century innovative workforce that can position the nation's economy in a favorable and competitive position in the contemporary knowledge-driven global economy. As part of concerted efforts to correct past mistakes and set the nation's education system on the right trajectory, the Federal Government of Nigeria in 2004, launched an updated version of the National Education Policy (Federal Ministry of Education [FME], 2004).

The current national policy on education under implementation covers all levels of education and incorporates new areas of focus, which, among other things, include the reform of the previous laws and policies guiding tertiary education in Nigeria. In addition, the policy canvasses for the introduction of Open and Distance Education, also known as online and hybrid education (FME, 2004). Consequently, to achieve the broad objectives outlined in the policy as detailed on Section 8 of the Tertiary Education Policy (p. 36), universities and all institutions of higher education are encouraged to pursue the following: develop innovative learning and teaching paradigms such as online and hybrid programs to augment traditional on-campus, face-to-face learning method to prepare students to better respond to contemporary and future national challenges; vigorously pursue research and development; introduce and maintain continuous staff training and development programs, the acquisition of intellectual knowledge and skills for

individual growth and national productivity, promoting national unity and international harmony (FME, 2004).

Furthermore, the government of Nigeria has identified education, especially higher education, as the essential element in its drive to attain the goals of National Economic Empowerment and Development Strategies (NEEDS). Essentially, universities and other higher institutions represent key instruments for human resource development, sociopolitical integration, diversity and transformation of the Nigerian economy into a global powerhouse (Olutola & Olatoye, 2015).

The Impact of New Communication Technologies: Online Education in Nigeria

The second element of this study involved the changes and development brought by new information and communication technologies to the online learning space. While it could be argued that distance education in its earliest forms such as correspondence courses and education via the radio predates the advent of the internet and other more recent communication technologies, the introduction of the broadband Internet, wireless, and other technologies has brought tremendous transformation and innovation to the Nigerian education landscape. Online education in institutions is possible today because of the Internet. For example, the Internet and wireless broadband technology along with other online-based applications such as Learning Management System (LMS) and Massive Open Online Courses (MOOC), are largely responsible for the current momentum in the online and hybrid learning space. It is gradually becoming commonplace for many universities and other institutions of learning to have students routinely enroll and actively participate in courses and academic programs online from distant parts of the world without necessarily ever visiting the institution.

In Nigeria, the global trend in the education ecosystem is not different. In order not to be left behind, many local universities and institutions of higher learning have begun to make a necessary paradigm shift in their instructional models that reflects global innovations in education. Specifically, institutions like the University of Ibadan (UI), Obafemi Awolowo University Ife (OAU), among several other local universities and tertiary education providers in Nigeria have begun to leverage the growth of the internet and other available communication technologies in expanding their academic programs to include courses and programs through hybrid and online systems. The strategic goals for these institutions include: overall development of human capital for the nation, attraction of future students, and development of innovative teaching and learning strategies that will position Nigerian schools as model institutions of the future.

Predictably, improved technology is creating a scramble among many universities and other tertiary institutions in Nigeria to introduce complete online and hybrid programs in their curricula, complementing their traditional on-campus programs with 21st century tools. In 2002, as part of its renewed commitment to create broader access to university education for its citizens, the government revived the National Open University of Nigeria (NOUN), which was hitherto closed by the military government in 1984, barely one year after it was established (Fagbamiye, 2000; Olakulehin, 2008;). The NOUN is a distance learning institution including both online and hybrid instruction, and providing professional and academic training in a wide range of disciplines. With an over five hundred thousand student population spread across 78 study centers located in all parts of the country, NOUN, arguably the largest open distance learning institution in Africa, was established to provide functional, flexible, accessible, and

cost-effective education to the millions of Nigerians who want to earn a university education (NOUN, 2020; Olakulehin, 2008).

The Scramble for Greater Student Enrollment and Increased Education Market Share

The third element in this study focused on the issue of increased student enrollments at most of the local universities that sometimes lead to overcrowding and collapse of the social and academic infrastructure. Since the 1960s, following the country's independence from colonial rule, university enrollments have steadily grown among all existing institutions. At the same time, there has been a substantial increase in the number of new universities, along with numerous other tertiary institutions, established in the country, in a concerted effort at providing university and professional education for the millions of Nigerian students (Agboola & Adeyemi, 2013; Olakulehin, 2008). With all this, still the number of existing universities and tertiary institutions is grossly inadequate for meeting the needs of the large percentage of the nation's youth that aspires to higher education.

The country would need to more than double the current number and size of government and privately funded tertiary institutions in order to meet the growing demands for future education capacity. Toward that end, there are on-going efforts by the government, through the Federal Legislative Assembly, to approve the establishment of nine new government-owned tertiary institutions (Ozibo, 2018).

The introduction of distance and hybrid education represents one of the strategies through which some of the existing universities are responding to the crisis of overcrowding and lack of physical space. In spite of several drawbacks resulting from lack of proper technology, erratic or unstable internet connectivity, outdated pedagogy, the online and hybrid education model seems to be gaining significant traction among institutions and students. Some of the growing attraction

for distance and hybrid education among the universities in Nigeria comes from the belief that online and hybrid education may mitigate the problems of inadequate education opportunities and ever-increasing costs of a face-to-face university education.

Consequently, new online and hybrid education platforms will provide these new and developing universities opportunities to not only expand their student enrollments but also to gain a better higher education market share. The scramble to develop new programs has resulted in creating important changes in the education sector of Nigeria.

Academic Research in the Field of Online and Hybrid Education in Nigeria

The fourth important element constituting the background of this study focused on the level of academic research and scholarship in the Nigeria online (distance) and hybrid (blended) education space. In the course of the last three decades, there has been consistently growing academic and research interest around the subject of distance education and its capacity to broaden education opportunities for students desirous of tertiary educations, as well as around its potential contribution to national development.

Historically, the practice of distance education in Nigeria dates back to the colonial era (Omolewa, 1982; Owoeye, 2004), when Nigerian students registered for correspondence courses offered by universities based in the UK (Olakulehin, 2008). A large part of the existing literature on education in Nigeria centers around the historical development of distance and blended learning. The overarching impression created by these articles is that distance education constitutes an important dimension in Nigeria's higher education ecosystem, and this is well documented in papers written by national scholars including Olakulehi (2008), Owoeye (2004), and Omolewa (1982), and others.

Another important dimension that has attracted national research interest relates to the capacity of distance and hybrid education to mitigate the challenge of access to university for millions of Nigerian youths. Similar to the case in many other developing countries, distance education, encompassing both online and hybrid learning, has been seen as an important means of expanding access to education for all (Aluede et al., 2012). Furthermore, Aderinoye and Ojokheta (2004) argued that distance education has, over the years, aided the social and economic development of Nigeria through programs supporting national capacity building, community healthcare management, and teacher education, among many others.

In summary, it is important to note that a considerable research literature has been devoted to the subjects of distance learning and its subsets of online and hybrid learning in relation to its history, development, economic impact, and the improved access to higher education for Nigerians. At the same time however, the area remains under-researched, particularly in the area of students' perceptions of their experiences engaging online and hybrid learning. This situation creates a critical knowledge gap that will become essential to the continued growth and quality assurance of the online higher education in Nigeria.

Purpose of the Study

The purpose of this study was to understand the perceived experience of students in Nigerian universities in the online learning environment. As its outcome, the study lent clarity to on-going conversations about online learning as an efficient and reliable alternative model of learning at universities and other educational institutions in Nigeria. To accomplish that task, this research sought to analyze the spectrum of growth in the history of Nigeria's higher education sector with a particular focus on online learning. Further, the study aimed to better understand students' engagement with technology and their participation in online learning environments.

In order to ensure holistic and sustainable growth along quality assurance in online courses and programs at the Nigeria's few accredited universities, it is important that students' perspectives relative to online learning and teaching are taken into account. One critical goal of this study was to ensure that students' academic interests and concerns were robustly reflected in the design of academic programs and courses delivered through online learning platforms including the Learning Management Systems (LMS). A comprehensive study and analysis of students' experiences, which would include the challenges and successes of distance education could contribute to more functional education design of distance education in service of achieving the desired goal of learning and teaching at national universities.

Research Questions

As stated in previous sections, this study explored Nigerian students' experience of online learning. In order to determine the perceived effects of online and hybrid learning on students, the study used four predictive questions to addresses the relationship among the variables of experience (EXP), participation (PAR), technology (TECH), and satisfaction (SAT):

- RQ1. How do students' experiences with online and hybrid learning lead to satisfaction in education?

- RQ2. In what ways do the level of participation among students in the online/hybrid learning environments determine their satisfaction in learning?

- RQ3. How does the Internet, and other communication technologies like learning management systems (LMS), and social media affect the learning experiences and satisfaction of students?

- RQ4. Is satisfaction in learning among students of the online/hybrid learning models equal to the sum of positive experiences, active participation and good technology?

Overview of Methodology

This study was conducted utilizing the embedded mixed method design to gather and

analyze the data for interpretation. Embedded mixed method design allowed the researcher to

embed or place "one or more forms of data (quantitative or qualitative or both) within a larger

design" (Creswell, 2014, p. 228). The embedded mixed method was considered an appropriate

design to conduct this study because it allowed room for the nestling of quantitative data in the

qualitative design protocol. Consequently, the researcher was able to answer different questions

that require the use of different data types. This embedded mixed method was designed to give

priority to qualitative data about the experiences of students with online education while

gathering pertinent quantitative data measuring levels of satisfaction with specific tools and

subject reported academic performance indicators. An electronic survey (Qualtrics) was used to

capture both the quantitative and qualitative data from the subjects. Triangulation of the

qualitative and quantitative data enabled stronger confidence in study conclusions.

Conceptual Framework

Globally, online learning has been steadily attracting considerable attention from scholars

and researchers in the past few years, judging by the number of articles and research reports on

the learning model. This attention derives from the knowledge of the potential of this learning

model to transform education in general by expanding access to education not only for traditional

students, but for millions of non-traditional students globally. In Nigerian higher education

ecosystem, the development of the online, and its hybrid subset, much like in other climes, is

also on an upward swing and experiencing rapid growth as more students and institutions

continue to sign up to the model of learning. For the conceptual frame work, this study utilized

the lens and ideas from two learning theories namely, situated learning by Jean Lave and Etienne

Wenger (1991), and connectivism by Stephen Downes (2008) and George Siemens (2005) developed to study the perceived experiences of students of distance (online and hybrid) learning at Nigerian universities.

Furthermore, as a backdrop to the broader understanding of the issue at stake, the study presented the sequential development of distance learning from a mainly analogue model of learning to an internet based online and hybrid learning as practiced today in some Nigerian universities. Historically, distance education in Nigeria basically relied on the use of snail mail and other traditional communication platforms including the radio prior to the introduction of the Internet broadband in the Nigerian higher education ecosystem. Consequently, the goal was to examine students' perception of their learning experiences and their engagement in online and hybrid programs at local higher education institutions in Nigeria.

Definition of Terms

This study involves a few distinct terminologies that require definition and description of contextual usage for the purpose of the study.

Distance Education/Learning (DE). Distance education, sometimes referred to as open distance education (ODL) in the Nigerian education ecosystem, has a wide range of meanings and definitions depending on the context. Greenberg (1998) affirmed this fact by stating that the term DE has changed meanings in the past 25 years due to the changes in technology. Similarly, Phipps and Merisotis, (1999) corroborate the technology induced fluid understanding of distance education/learning definition by arguing that the meaning of distance learning is constantly evolving as a result of changes in technology. Consequently, distance education is defined as an organized teaching/learning experience that utilizes broad spectrum of technologies to connect

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with students in remote locations with the goal of encouraging student- teacher interaction and knowledge capital (Greenberg, 1998).

In the Nigerian tertiary education context, distance education (DE) has been used in a general way to delineate every kind of learning/teaching that occurs when the teacher is physically separated from the student. Teaster and Bliesner (1999) affirm this understanding of distance education by arguing that "though the term has been applied to many instructional methods, its primary distinction is that the teacher and the learner are separate in space and possibly time" (p. 741). In this study, distance education (DE) and distance learning (DL) refer to the same mode of learning, and will be interchangeably used.

Hybrid or Blended Education. Hybrid or blended learning refers to the use of both the traditional classroom or face-to-face teaching style where students participate in learning in the classic classroom with the instructor present in the same, and web-based technology facilitated content delivery systems in teaching with students and instructors in remote locations (Allen & Seaman, 2015).

Online Education. Just like distance learning, the precise definition of online learning has equally generated some debates. J. L. Moore et al. (2011) state that over the last two decades, literature on the subject have been largely inconsistent on the precise definition of online learning as distinct from online education. Having said that, it is important to specify the definition of online learning for this study. This term refers to the use of web-based technologies for the delivery of academic contents to students in different locations in real time (M. G. Moore, 1990). Specifically, online education is Internet- based while distance education may not necessarily not be delivered through the Internet.

Significance of Study

In general, online and its hybrid learning subset in the higher education system in Nigeria have yet to attain mainstream perception and recognition. It is still a developing education sphere of practice with great potentials to mitigate many of the current challenges bedeviling tertiary education in Nigeria. Nonetheless, online learning or distance learning (DE) as it is often referred in the Nigerian education ecosystem has, over the last ten years, been experiencing rapid transformation and upswing due, largely, to the improvements in internet broadband connectivity and introduction of new learning technology (Aderinoye & Ojokheta, 2004; Olakulehin, 2008; Towobola & Raimi, 2011). Whereas a few years ago, it was nearly impossible to consider online education and its hybrid subset as credible alternatives to the traditional face-to-face on-campus learning format due to the dearth of appropriate learning technology including Internet connectivity; that is no longer the case today. There is a steady growth both in the access and cost of broadband internet and Wi-Fi connectivity in Nigeria, making it possible for thousands of potential students to connect remotely. Consequently, thousands of students currently enroll into several online and hybrid programs

Two direct outcomes of this growth include: (a) the significant increase in student enrolments at both foreign and local universities that offer certificate and degree programs in distance (online and hybrid models) education, and (b) the increase in the number and the quality of academic programs available to students in online and hybrid formats. Currently, there are eleven universities in Nigeria accredited by the National Universities Commission (NUC) to offer various programs at undergraduate and graduate levels using distance (online and hybrid) education models, NUC, 2020). In 2014, four local universities were initially accredited to run pilot online and hybrid degree programs in selected fields following the successes recorded in the

universities that had earlier been accredited to run online and hybrid programs at undergraduate and graduate levels (NUC, 2014).

The four traditional universities with accreditation for online degree programs include: University of Uyo, Akwa Ibom (UNIUYO); Usman Danfodio University, Sokoto (UDU); University of Maiduguri (UNIMAID), and National Open University of Nigeria – NOUN. Later on, following the success of some of the initial pilot institutions, other universities were granted the approval to commence programs in online and hybrid learning. They include: University of Ibadan (UI), University of Nigeria, Nsukka (UNN); Obafemi Awolowo University, Ile-Ife (OAU); University of Lagos (UNILAG), Ladoke Akintola University of Technology, Ogbomoso; Ahmadu Bello University, Zaria (ABU); University of Abuja (UNIABUJA), Modibbo Adama University of Technology, Yola; Joseph Ayo Babalola University, and Lagos State University- LASU (NUC, 2020). The NUC continues to revise this list from time to time based on the review of the schools' operation protocol. Some of the earlier approved institutions were downgraded due to their inability to meet the minimum expected academic protocol for ensuring quality and credibility of online learning in the education policy.

In view of these changes and transformation in the distance (online and hybrid) education sector, the impact of the technological changes as well as other variable factors on the students' performances require proper study. Thus far, research literature on the experiences of students who enroll in distance, online and hybrid programs in Nigeria has been lacking or insufficient. For instance, there is need to study the impact of new technology on students' academic performance as well as their preference for specific models of online learning assisted technology.

This study, which focused on the experiences of students who have participated in distance, hybrid or online learning at a Nigerian university is significant in many respects but focus was placed on three main objectives. The most critical role that this study performed was the provision of the necessary foundational research data and statistics on which further conversations and studies will rest. Based on the literature reviews, it was clear that there was a big informational and statistical data vacuum in the area of online and hybrid learning in tertiary education in Nigeria.

Another significance of this study involved the promise of providing important feedback to university administrators, technology and curriculum designers as well teachers of online and hybrid programs about students' experiences in relation to their academic performance in distance learning, hybrid and online education in Nigeria.

The third significance related to its capacity to influence policy and investments in the area of online and hybrid education in the country. As a growing area of tertiary education, distance education, hybrid and online education have a huge role to play in helping to increase access to university education for millions of Nigerians who would otherwise be denied the opportunity due to the limited carrying capacities of the existing tertiary institutions in the country.

Summary

The first chapter in this five-chapter dissertation opens with the introduction of the study and focuses on the key elements that will help to shape the study. These elements include the background, purpose, definition, and significance of the study about online and hybrid learning in Nigerian higher institution. The chapter establishes the information gap or need in the online

and hybrid education system in Nigeria by proffering four research questions that will guide the tone of the study in the ensuing chapters.

Organization of the Study

This dissertation is organized into five chapters that focus on the different important aspects of the mixed method study. Chapter One gives the outline of the study by introducing the subject matter, the background, purpose and significance of the study as well as the guiding research questions for the study namely, exploring the perceived effects of online and hybrid learning on the experiences of students in Nigerian universities. Chapter Two is directed at the relevant literature review for the study, which includes the historical development of tertiary education in Nigeria. The literature review also focused on the development of distance learning and its transformation to online and hybrid learning made possible by the advancements in technology and communication in Nigeria.

Chapter Three discusses the design of the study and procedure for conducting the study. Using the lenses of two learning theories: situated learning and connectivism, the study develops the conceptual framework for the purpose of answering the four research questions and survey for field data collection. Embedded mixed method design was chosen for this study in order to better accommodate the dynamics of the research questions. The chapter further highlights the instrument for data collection, strategies and procedures. It concludes with a preview of the process of data analysis and interpretation.

Chapters Four and Five are dedicated to a detailed discussion of the study findings and the implication of the outcomes to the advancement of knowledge of online and hybrid learning in Nigeria higher education environment. Finally, Chapter Five concludes with the researcher's insights and knowledge of the study and recommendations for future study.

Chapter Two: Literature Review

Introduction

The review of relevant literatures that facilitates this embedded mixed method study includes an in-depth exploration of the goals of education, the state of higher education in Nigeria, and the brief history of higher education in Nigeria. It would also highlight the challenges and growth potentials of tertiary education in Nigeria. An understanding of distance education (DE) and its practice at Nigerian universities is a necessary element for the study, and an in-depth discussion of online and hybrid models as alternative models of learning in the Nigeria tertiary education ecosystem is provided. A robust discussion and review of these related issues creates the backdrop upon which to build this important research.

Two learning theories are the philosophical lens through which the review and analysis of key ideas and concepts in this study will be explored: situated learning, originally developed by Jean Lave and Etienne Wenger (1991); and connectivism, developed by Downes (2008) and Siemens (2005). These theories will be utilized in this descriptive study of students' perception of their experiences in online and hybrid learning in Nigerian tertiary institutions. Findings from this study are intended to support recommendations for improvements in the policy and practice of online and hybrid learning models for Nigerian schools of higher education. Implementation of those recommendations is expected to improve learning and satisfaction for all stakeholders, particularly students.

Goal of Education

In contemporary societies, education plays unique and specific roles. Beyond the historical perception of education as merely a means of socialization of individuals in societies, education has assumed a more specific function due to the myriad of needs that learning needs to

satisfy in our industrialized and sophisticated economies. Although systems of education may have gone through different transformations over the course of history, today the most basic function of education is a foundational system of society that is geared toward the intellectual social and professional development of human capital. Historically, as we began to live in organized communities, and then through the various stages of human development to date, education has always played key roles in the intellectual and social formation of children and youth.

Beginning in the Medieval Age of Feudalism, and up until the dawn of the Industrial Age, European societies developed schools for skills training which prepared children and unskilled workers for jobs in factories (P. Gray, 2008). In the beginning, efforts by monks and other church leaders to educate school age children, particularly the children of aristocrats (as well as a few from lower class families), could be considered the beginning of the development of formal Western education (Marcia, 1997).

In his book, How We Think, John Dewey, a foremost educator, philosopher and psychologist of the early 20th century echoed the ideas of earlier philosophers by arguing that education is for critical or reflective thinking (Dewey, 1910). Dewey defined reflective thinking as "an active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends" (Dewey, 1910, p. 6). Consequently, critical or reflective thinking is considered to be the normative telos to knowledge and research, especially at universities and other higher educational institutions today. Learning, regardless of the it's form, ought to foster critical thinking, and encourage productivity among students and instructors.

In summation, the purpose of this study was to explore students' experience of online and hybrid learning in Nigerian higher education. This objective is tune with the goals of education, traditional or online, in preparing individuals for future roles in societies by equipping them with the intellectual, practical. and professional skills to become responsible and reliable citizens of communities and nations. Nigeria's goals for education may be limited and underachieved without proper study and proper regulation of student learning.

State of Higher Education in Nigeria

Higher education in Nigeria, much like in other nations, is considered to be the critical engine of nation building, social development, and change. Congruent with Nigeria's National Policy on Education (2004), Olutola and Olatoye (2015) defined education as the primary "instrument of social, political and economic development" (p. 301). University education is at the core of societal transformation and at the epicenter of intellectual and human resource development and advancement in a nation; it's where leaders are trained, where professional skills are formed, and where critical thinking is developed (Odekunle, 2001; Olutola & Olatoye, 2015). The World Bank affirmed this view by stating "education in general, and higher education in particular, are fundamental to the construction of a knowledge economy and society in all nations" (Saint et al., 2003, p. 1). Without good education policies, adequate funding, proper policy implementation and resource management of the higher education system, Nigerian universities and other tertiary institutions will be unable to adequately deliver its goals of national transformation and development.

The tertiary education in Nigeria, one of the largest education systems on the African continent with nearly 400 institutions of higher learning, can best be described as one in a state of growth and expansion. Unfortunately, in the six decades since its establishment, Nigeria's

higher education sector has been characterized by as many challenges as opportunities. While one of its opportunities lies in the abundant human capital resources represented by the teeming, youthful, and intellectually curious population, some of the challenges stem from the seeming inability or lack of will on the part of Nigeria's political elites to fully harness and appropriate human capital into a skilled and productive force for the development of the country and her people. In a subsequent section of this chapter, attention would be drawn to the discussion of the challenges facing higher education in Nigeria.

No nation can fully develop its human resource potential and compete successfully with other nations without investing in a well-developed and functional higher education system (Porter, 1990). This fact is more compelling in our contemporary culture of knowledge-driven economies as against traditional economies that relied largely on natural resources. As global economies transform themselves into knowledge and service-based economies, qualitative training and skills-driven education at schools of higher institutions have become imperative. There is no doubt that many aspects of Nigeria's the higher education are in dire need of improvement and standardization, both in policy development and implementation in order that it may better fulfill national needs and meet international requirements. Without diminishing the reality of the challenges posed by its enormous problems, the analysis of Nigeria's higher education would be incomplete without alluding to the small, but often important progress and contributions by government and individuals in recent years. Perhaps due to the abundance of problems and challenges in the sector, researchers, international agencies, and academics have tended to concentrate their analyses only on the negative aspects of the Nigerian university and higher education systems. Subsequent sections of this would focus on some of the strengths and accomplishments as well. Figure 1 is a map of Nigeria and its geographical location.

Figure 1

The Map of Nigeria and Its Geographical Location
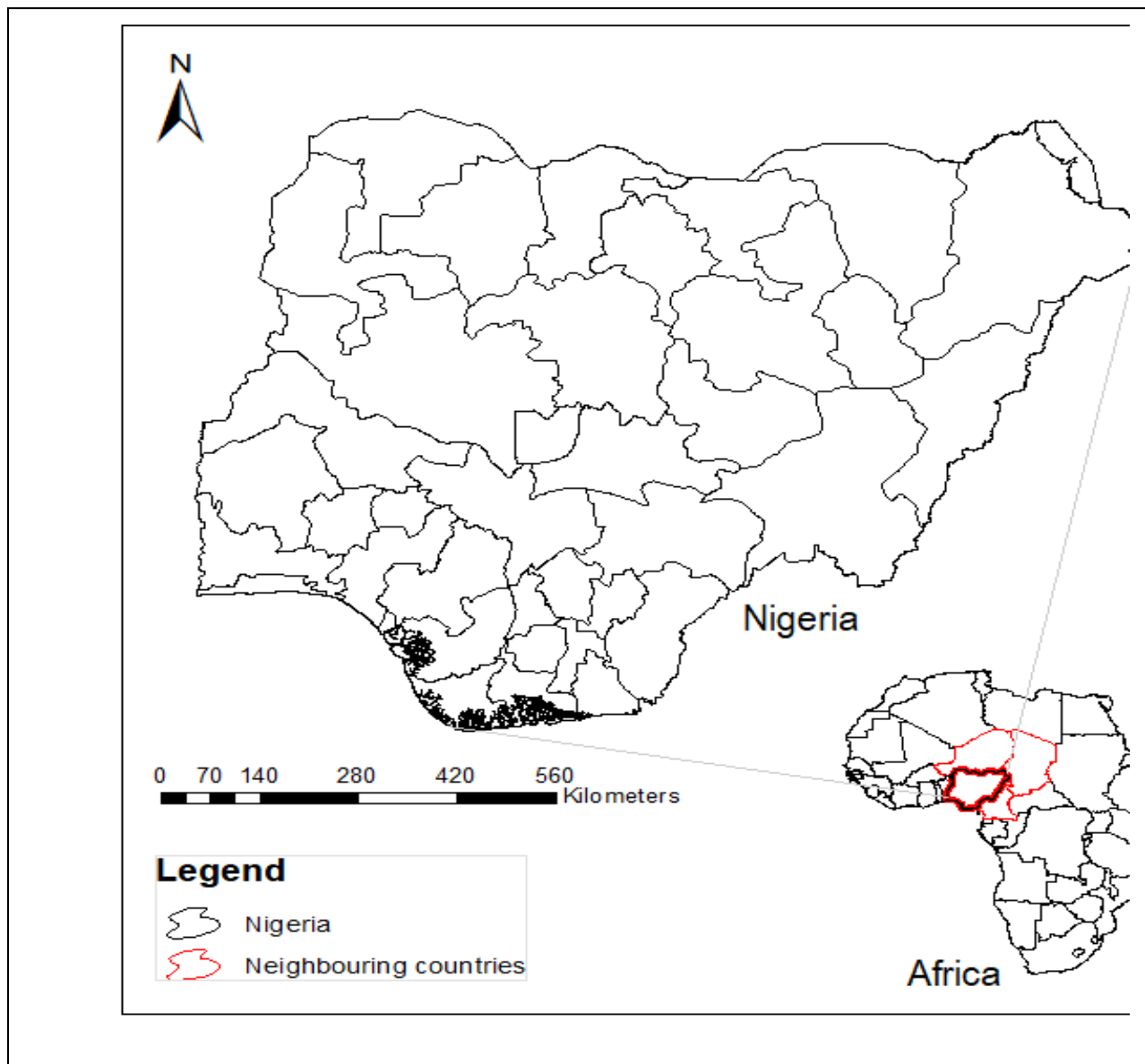
Note. "Country Report on Nigerian University Education – 2019," by R. L. Lembani, 2019, *National Research Foundation*. (http://ideaspartnership.org/userassets/IDEAS_Nigeria_ Country_Report_2019_FINAL.pdf). In the public domain).

Brief History of Higher Education in Nigeria

The University of Nigeria, Nsukka (UNN), established in 1960, was the first local university in Nigeria after its independence from British colonial rule (Iruonagbe et al., 2015). Before 1960, Nigeria did not have an independent local university and only a very small fraction of the population was eligible for higher education (Ajayi, 1975). At its independence from Britain in 1960, there was no functional tertiary education system in place (Iruonagbe et al., 2015). The only two existing tertiary institutions were the University College of Ibadan, which was affiliated to the University of London, and Yaba Higher College, established in 1932 (Jibril, 2003). However, there was strong determination among the leaders of the nascent nation to establish more universities and institutions of higher education based on their understanding of the role universities in the development of a nation.

Between 1960 and 1970, a total of six federal government funded universities were established in the various geo-political regions of the country, reflecting a federalist distribution of education opportunities (see Figure 2). Those universities include:

- University of Nigeria, Nsukka -1960;

- Obafemi Awolowo University, Ile-Ife - 1961;

- Ahmadu Bellow University, Zaria, 1962;

- University of Lagos -1962; (v) University of Ibadan -1962, and

- University of Benin -1970.

Subsequently, seven more universities were established between 1970 and 1977 in other parts of the country, bringing the total number of universities to thirteen (Ekundayo & Ajayi., 2009; Iruonagbe et al., 2015).

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Figure 2

Distribution of Federal Universities in Nigeria
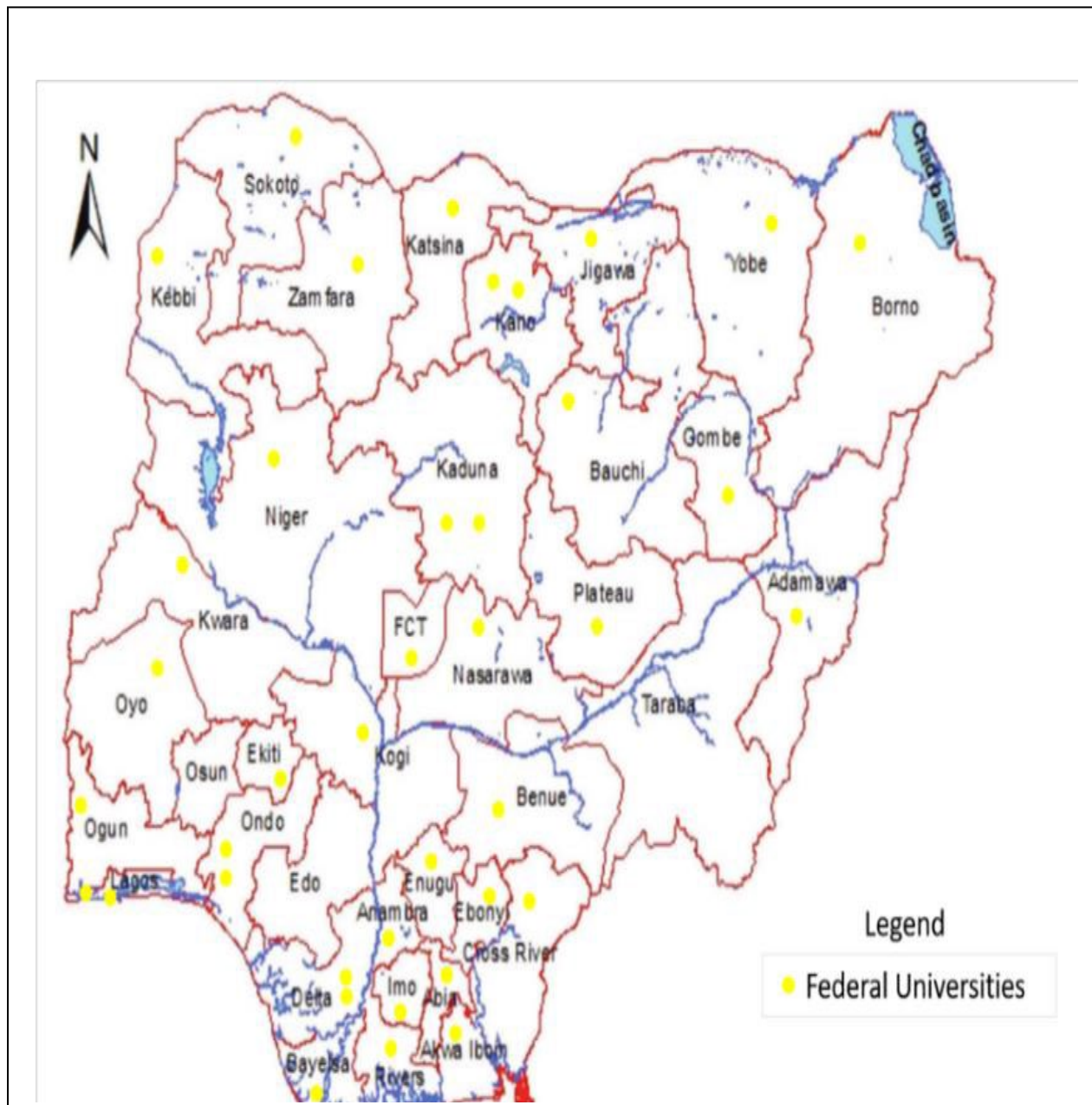
Note. "Country Report on Nigerian University Education – 2019," by R. L. Lembani, 2019, *National Research Foundation*. (http://ideaspartnership.org/userassets/IDEAS_Nigeria_ Country_Report_2019_FINAL.pdf). In the public domain).

In 2019, there were over 300 active institutions of higher education in Nigeria. Although

the education sector, which represents a very important aspect of Nigeria's development, is

under the umbrella oversight of the FME, the administration, supervision, and regulation of the various categories of higher education are designated to respective local government agencies to ensure better management. For example, the agency tasked with the regulation, management, and certification of all the universities in the country is the NUC. The polytechnics, monotechnics, technical colleges, schools of agriculture, innovation enterprise institutions and all vocational training institutions are under the direct supervision of the National Board for Technical Education (NBTE). The colleges of education are under the purview of the National Commission for Colleges of Education (NCCE).

According to the statistics on higher education published in 2019 by the NUC and the FME, there are 91 government universities and 79 privately funded universities in Nigeria with several others in the process of establishment (NUC, 2020). Furthermore, there are more than 218 other tertiary institutions comprising of polytechnics, monotechnics, institutes of technology, petroleum training institutes, colleges of education, colleges of agriculture, nursing schools, and other professional training colleges scattered across the country (NUC, 2020; FME, 2018). The challenge is that, in spite of the relatively large number of existing universities and other higher education institutions, Nigeria is still a long way from meeting the demands for higher education needs of all its youthful population (see Figure 3).

Figure 3

Chart of Student Enrolment at the Three Types of Universities in Nigeria
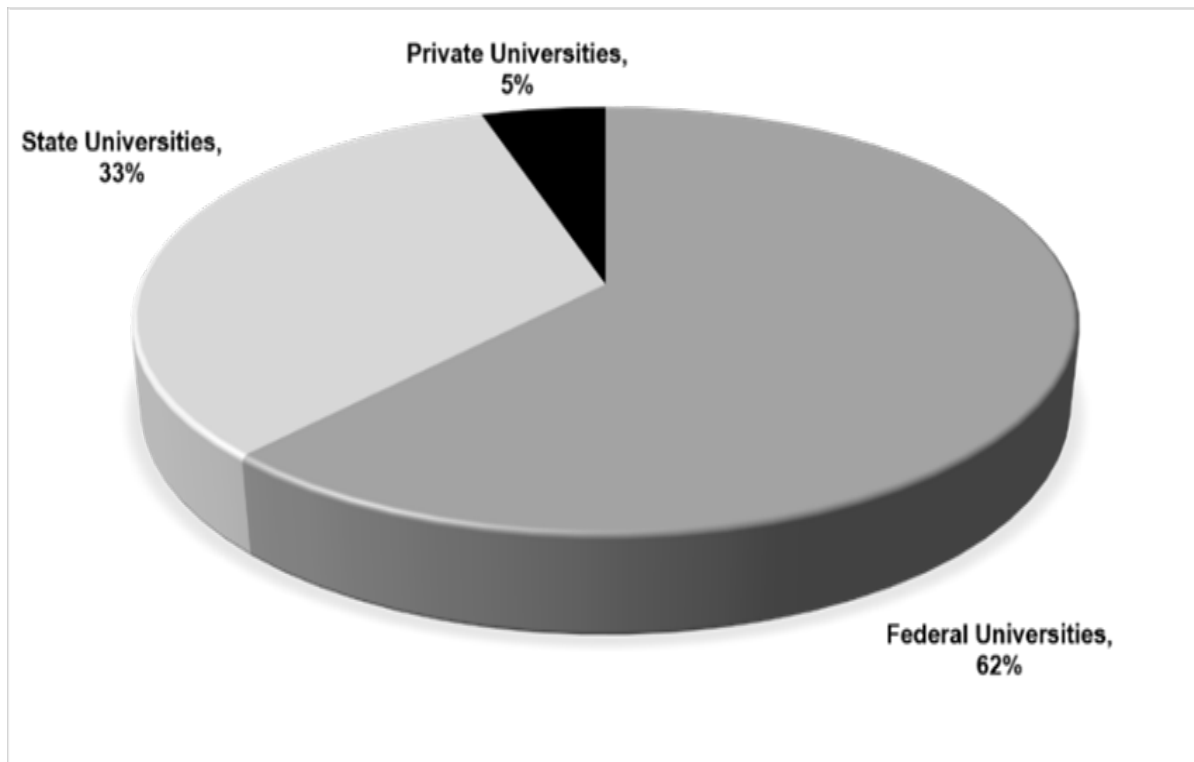
National Higher Education Policy for Nigeria

In any society or organization, policies are strategic guides that facilitate the proper planning of any project by ensuring a smooth implementation process for an approved plan of action. They act as the theoretical and intellectual framework on which all actionable plans are constructed as has been presented by several different scholars. Terry (1977) proffered a definition of policy as the overall guide that sets out the broad spectrum and direction within which administrative decision-making occurs. In other words, attends to the important parameters like the philosophy, goal, scope, time, space and resources, which help to successfully execute a plan. Similarly, Okoroma (2006) posits that policy is the guiding framework on which every action and decision in an organization depends. However, the scope

of a policy in any organization, whether public or private, does not necessarily include the power to make decisions (Terry, 1977).

The importance of policies as regulatory factors in business organizations and in the management of public entities cannot be overemphasized. Yet, without a proper implementation program, a policy regardless of its quality is valueless. Educational policies are therefore those guiding principles or frameworks that regulate and facilitate decisions and actions specifically in the education sector. For any policy to be recognized as an educational policy, its definition, objective and implementation must be clearly stated as education oriented (Kerr, 1976). According to Okoroma (2000), education policies are mostly the prerogatives of governments designed to facilitate, fund, manage and regulate the direction of a nation's education system.

In Nigeria, the development of a national policy on education has been fraught with challenges. Worse still, the country has performed below expectations over the years in the implementation of its education policies due several other factors including its unstable political climate. Along with other scholars, Okoroma agrees with this viewpoint and states that "policy implementation in education is a conspicuous national problem that has taken a center stage in Nigeria" (Okoroma, 2006, p. 245). Saint et al. (2003) further confirmed this perception by pointing out that Nigeria experienced "years of questionable education policies under various military administrations" (p. 2). While, in the last few years, there have been significant efforts to correct some of the anomalies bedeviling the education system, particularly the higher education sector, the negative impacts from nearly two decades of severe neglect will require sustained progress and development of positive momentum to overcome. Currently, there are renewed efforts both by the government and private investors in the higher education sector to

implement existing policies and thus reposition Nigerian higher education for maximum performance in the nation's overall development plan.

There was, *de facto*, no national policy on education in Nigeria until 1977; however, there was an *adhoc* commission in place, which acted in that capacity for many years while the government put together a new and official plan for national education policy (Okoroma, 2000). Prior to 1960, education in Nigeria was guided by the British colonial plan, and was designed to maximize British economic and politic interests. In 1959, as a part of the preparation towards self-governance and independence from British colonial rule, it was determined that existing education policy was incapable of satisfying new national aspirations and educational development (Okoroma, 2000). There was dire need to promptly develop an alternative plan on education for helping chart the direction of the nascent nation.

The peoples' disapproval of British rule gave rise to the Ashby Commission, which was set up as an advisory body to the new government on national education matters, with particular focus on higher education (Ekundayo & Ajayi, 2009; Iruonagbe et al., 2015). The establishment of the six universities between 1960 and 1970 were the result of recommendations by the Ashby Commission. The first edition of the national education policy in Nigeria was published in 1977, following years of deliberations and planning by experts and other stake holders in education (FME, 2004). Since that time, the national policy on education, including the higher education sector, has been reviewed and updated six times. The current national policy on education, which maintains some of the core principles of older editions, was last reviewed in 2013 (Federal Republic of Nigeria, 2013).

As had been the case with previous editions, the sixth edition of the national policy on education became necessary in order to reflect and respond to current changes occurring not only

in the educational scene, but also in the political, socio-cultural and economic spheres of the Nigerian society. In particular, the revisions in the current edition were necessitated by the need to address the apparent lapses both in the content and in the implementation of the 5th edition, which was published in 2007 (FME, 2013). Nigerian policy on education defines tertiary education as "the education given after secondary education in universities, colleges of education, polytechnics, monotechnics including those institutions offering corresponding courses" (FME, 2004, p. 36).

The universities and other higher educational institutions are expected to promote seven main objectives, as follows:

i.   Contribute to national development through high level manpower training;

ii.   provide accessible and affordable quality learning opportunities in formal and informal education in response to the needs and interests of all Nigerians;

iii.   provide high quality career counseling and lifelong learning programs that prepare students with the knowledge and skills for self-reliance and the world of work;

iv.   reduce skill shortages through the production of skilled manpower relevant to the needs of the labor market;

v.   promote and encourage scholarship, entrepreneurship and community service;

vi.   forge and cement national unity, and

vii.   promote national and international understanding and interaction. (FME, 2013, p. 26)

Furthermore, national education policy clearly states that the above goals of higher education should be pursued by the institutions through intensive programs utilizing all necessary teaching modes including traditional (face-to-face) classroom, distance learning, and hybrid learning, as well as research and development of qualitative admission processes and

high-quality learning facilities and programs. Several other important aspects of the Nigerian education policy relate to funding of the federal and state owned (government) institutions.

Positive Aspects and Potential Areas of Growth in Nigeria Higher Education System

Many of the research and scholarly reports on Nigeria's education tend to focus more on the problems or challenges than on the positive aspects of the education system. There may a good reason for that approach. Nonetheless, it would be an unbalanced analysis to assume that there are no positive advancements or growth in the education sector. The higher education system in Nigeria has grown from humble beginnings into a large and complex network of nearly 400 institutions comprising universities, polytechnics, colleges of education, nursing and agriculture, military training institutes and other specialized schools.

In the last few decades, the local institutions, despite their limitations, have continued to produce a well-trained and skilled workforce that has helped to drive the emerging middle class and the economy of Nigeria. In addition, skilled professionals in different fields of human endeavor constitute one of the major exports of Nigeria to the global community. Across most of the sub-Saharan nations, and even beyond, highly trained Nigerian professionals and academics continue to break barriers and make academic and professional strides in their chosen fields.

Nigerian universities have produced notable global figures in literature and the field of science, including, for example, Wole Soyinka, a Nobel laureate, and Chinua Achebe and Philip Emeagwali, both notable computer scientists. In addition, the US Bureau of Statistics and Census report published in 2017 determined that Nigerians are among the most educated immigrant groups in the US with 61% of them having at least a college degree or higher (Ogunwole et al., 2017). Most of these immigrants were educated in Nigerian universities prior to their assimilation in the United States.

Management of such a large and complex education network requires robust policies reflecting current trends in education as well as the current challenges and opportunities education sector. Since 1960, following the nation's independence from the British colonial rule, there has been a steady increase in the quality of higher education, the number of higher institutions established, total numbers of students seeking education.

Challenges in the Nigeria Higher Education Sector

Several academic and social development reports on Nigeria's educational system suggest that the sector has been held back by many challenges. Some of these have prevented the higher education system from reaching its full potential in terms of growth projections and in its contribution of skilled labor to the development of the country. Scholars and other stakeholders in Nigerian education have identified overcrowding in schools, government interference, inadequate funding, poor infrastructures, poor implementation of education policies, and outdated pedagogy as some of the main challenges to Nigerian education (Ajadi et al., 2008; Moja, 2000; Okoroma, 2006; Olutola & Olatoye, 2015; Saint et al., 2003).

Government Interference

Many of the issues plaguing Nigeria's education system today have their roots in poor governance (Okoroma, 2006). Poor governance manifests itself in various forms. Successive governments in Nigeria starting in the 1970s and continuing through the 1990s were notorious for arbitrary interference in the education affairs of the country without attending to existing policies, and have performed abysmally in the implementation of education policies (Saint et al., 2003) that have been attended to. Those years were characterized by political upheavals and several military regimes that intermittently dictated the affairs of the country from the 1970s until 1999 when Nigeria returned to its current democracy. By this period in its history, the

young nation was basically finding its initial foothold on self - governance, political administration, poverty alleviation, equity in resource management and cross-cultural engagement after a century of colonialism. Then, unfortunately, the burden of an ethnically induced civil war lasting three years and resulting in more than a million deaths almost derailed the developmental trajectory of the nascent nation.

Government interference occurs in the form of arbitrary changes and appointments of leaders in the education ministry that show support and loyalty for the specific ruling class, sometimes to the gross disregard for due process; reneging on signed agreements with various education unions like the Academic Staff Union of Universities (ASUU) and Non – Academic Staff Union (NASU). The immediate outcomes of such political and administrative insensitivity include indefinite academic and non-academic workers' strikes resulting in the disruption of academic activities at most of the nation's federal and state funded universities that may last from three months to more than a year.

Poor Policy Implementation

It is said that the bane of Nigeria's education does not lie in the lack of proper policies; rather, it emanates from the lack of political will on the part of the leaders to fully implement existing policies it order to benefit ordinary citizens. Poor policy implementation occurs when the government fails to fully or partially implement actionable decisions that pertain to existing challenges in the education sector, or to introduce development through innovations prescribed by approved education policies. Policies fail to achieve their desired objectives when political agents and administrators of educational institutions lack the will or intellectual capacity to pursue Nigeria's education policies. The recurrent reality among government officials of not following through with the program of education development as required by policies is a

symptomatic reflection of the problems confronting the larger Nigerian society. The failure of government writ large and small to uphold and enforce democratically established education policy is at the core of many problems confronting the country's education sector. Okoroma (2006), Jaja (2004), Saint et al. (2003) and others who have done studies on the educational system of Nigeria affirm these assertions.

While the 2004 edition of Nigeria's education policy clearly spells out the enormous needs in our education system, as well as the procedures to achieve the desired results at the various levels of education, most of the policies have failed to elevate the quality of education to the expected level. Over four decades after the first draft of the education policy, including higher education policy, many of the institutions funded and administered by the government are unable to pay good wages to their faculty and staff, or to provide international quality facilities such as electronic libraries, constant electric power and access to the internet, adequate classrooms. and housing facilities for students. The lack of basic learning facilities and infrastructure render education cumbersome and protracted for most Nigerian college students.

Overcrowding in Schools

Statistics from the United Nations World Population Review (2019) show that the population of Nigeria is on an upward trajectory. With the population currently at 199 million people, and growing at the rate of 2.6%, Nigeria is the world's seventh most populous country and is projected to become the third most populated country after India and China by 2050. With a median age of 17.9 years, Nigeria's population consists mostly of young people, many of whom are desirous of higher educations. A direct result of this is that nearly two million young people apply for a limited number of placements at universities and other higher education institutions. Overcrowding at these existing institutions, especially the universities, has become

one of the biggest challenges plaguing the higher education system in Nigeria today. There are currently more qualified candidates for higher education, particularly university education, than there are available spaces. In spite of having over 300 institutions of higher, Nigeria is still a long way from bridging the education gap and building the overall capacity to provide tertiary education for the millions of potential candidates (Moja, 2000). The challenges of overcrowding at higher institutions, coupled with the lack of access to higher education for many youths will certainly be exacerbated by the projected population growth over the next decades unless the country rapidly increases its education investments.

Data from the National Bureau of Statistics (NBS) and Joint Admission and Matriculation Board (JAMB) published in 2015 show a continuous trend in the inability of the nation's higher education institutions to absorb millions of Nigerian youths who graduate from secondary schools. For instance, of the over 10 million people who applied for university placement in Nigeria between 2010 and 2015, only 26% were admitted due to a shortfall in student capacity (Agboola & Adeyemi, 2013. This overcrowding scenario creates a major challenge to the Nigerian government in view of its plan to provide tertiary education for all eligible persons as an integral part of its drive towards national development. Figure 4 shows a bar chart detailing the university application and admission trends over the past 6 years. Poor education infrastructures and Inadequate funding.

Figure 4

Nigeria University Admission Statistics

University admission statistics between 2010 -2015

Year	Total applications	Total admissions
2010	1.5	423
2011	1.6	414
2012	1.6	447
2013	1.9	463
2014	1.7	437
2015	1.6	485
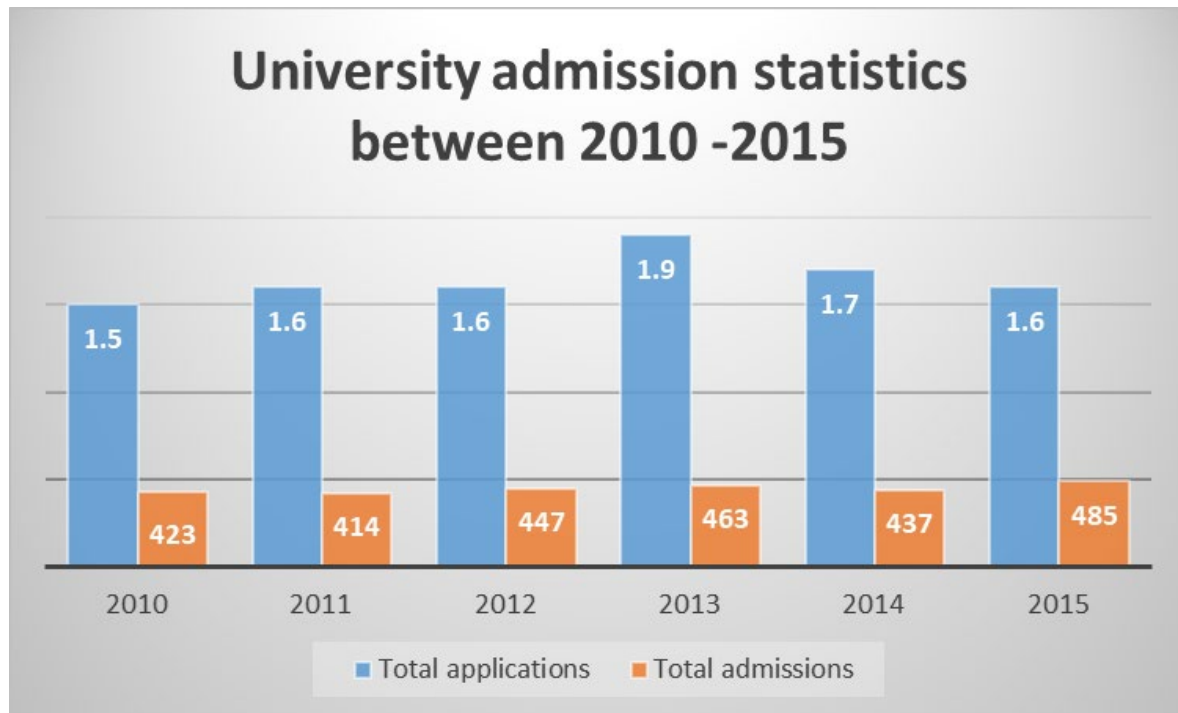
Note: "Africa has too few universities for its fast-growing population," by A. L. Dahir, 2017. . *Quartz*. (https://qz.com/africa/878513/university-education-is-still-a-dream-many-in-africa-are-yet-to-attain). In the public domain.

In Nigeria, education is largely in the hands of the government. Most of the education infrastructures are owned and managed by its FME and other education agencies. Privately owned institutions, especially universities, while fewer in number, complement the part played by public institutions. Successes or failures implementing government policies on education, public and private, have far reaching implications on the nation's population as a whole. The situation becomes even more dire in a country with huge disparities between demand and access to university education as Olakulehin (2008) affirms. Poor funding and infrastructural deficiency in Nigeria constitute major challenges to its development of education.

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In many government-led higher institutions across the country, evidence of poor or inadequate infrastructures abound, such as overcrowded classrooms, otherwise non-conducive learning environments, and inadequate learning tools are the results education of limited funds for education. Additionally, inconsistency in national education planning between successive governments, and corruption, have exacerbated the situation, and have resulted in insufficient resource allocation for schooling. While there have been some improvements in recent years, education funding at most government institutions of learning continues to be abysmal in relation to enormous needs. Infrastructural development at government institutions has continued to lag behind needs. For instance, in the last several years, the country's education budget has consistently fallen below the minimum benchmark of 15 to 20% (of GDP?) recommended by the United Nations. Education received only 7.5% of the S34 billion (US) budgeted for 2019 (Ameh & Aluko, 2019). Consequently, the continual trend of poor funding for education results in inadequate facilities and unconducive environments for learning.

Online Learning

Over the last three decades, following the intervention of the internet, online learning has developed to become an important model of collaborative learning that offers credible, flexible, and in some cases, cost effective alternatives to the traditional on-campus model of education. Historically, online learning could be described as an offshoot of a distance learning model since it involves the characteristic structure of instructor and student in different physical spaces. The idea has been supported by both Benson (2002) and Conrad (2002) who argue that online learning is a more recent version of distance learning since it expands access to education for many types of non-traditional students. Although online learning shares the same core characteristic found in distance learning (which includes any form of structured formal or

informal learning that occurs remotely), online learning specifically refers to learning experiences mediated solely by technology (Oblinger & Oblinger, 2005).

Defining Online Learning

No doubt the introduction of new technologies including computers, internet, and other communication systems and software such as Learning Management Systems (LMS) have combined to transform the nature of distance learning. into a much more expansive learning model capable of sustaining both synchronous and asynchronous classroom learning activities. With productive online learning systems, it is possible to provide most of the classroom instruction usually experienced in regular face-to-face classrooms.

Some scholars including J. L. Moore et al. (2011) consider the definition of online learning to be problematic due to a significant lack of agreement about it among education scholars. Whereas some define online learning as all forms of learning that are wholly online (Oblinger & Oblinger, 2005), others define online learning in relation to the specific technology platform or context in which the learning occurs (Lowenthal et al., 2009). Regardless of the apparent confusion or minor differences in the definition of online learning proffered by scholars, there is no doubt about what constitutes the practice of online learning. In other words, the disagreement or lack of common understanding about the definition of online learning could be considered as simply an academic conversation that needs to be held by the scholars and practitioners in this still unfolding and developing mode of learning. With rapid changes in new technologies that aid teaching and learning, it would not be surprising if the definitions keep changing with time.

One point of convergence is the fact that most of the proffered definitions for online learning describe it as "access to learning experiences via the use of some technology" (J. L.

Moore et al*.,* 2011, p. 130). Consequently, while this definition of online learning may have a broad appeal among many scholars, it does not however, make a clear distinction between distance learning in general, and online learning in particular. As was stated earlier, the distinction of online learning from the usual distance learning models (such as correspondence or simply audio-based learning) is that it is wholly reliant on internet-based and other information communication technologies (ICTs) as the core infrastructures upon which the instructor relies to deliver virtual classroom experience to students in far-flung locations in real time, and in a much more interactive manner.

Effective online learning experiences may require the successful combination of good pedagogy, designed specifically to facilitate skills and knowledge education, and improved student performance assessment through internet supported Learning Management Systems (LMS) like Blackboard, Sakai, Moodle, Canvas, and Docebo, among several other several open-source and/or cloud-based learning management platforms. Essentially, an LMS enables the instructor to design his/her course work as well as course assessment utilizing multiple delivery options including interactive synchronous and asynchronous video streaming sessions, forum or chat sessions, wikis, live quiz, emails, and other electronic media-related delivery options. Some of the better known and successful online learning programs include Coursera, Massive Open Online Courses (MOOCs), CodeCademy, and so on.

Growth in Online Learning in Higher Education

As was established in the preceding chapter detailing the study background, several reasons account for the exponential growth in distance education. A survey by Allen and Seaman, (2015) and the 2015 Online Report Card by the Online Learning Consortium (2015) that track online education in the United States state that in the last few years, there has been a

steady increase in the online education enrollment. Accordingly, the survey found that more than

31% of higher education students in the U.S. have participated in at least one online course

(Allen & Seaman, 2015; Josep, 2020;). Similarly, based on perceptions of current education

environments around the world, a marked increase in both the number of students and the

frequency of students' on-line participation in courses or programs through online learning

seems quite likely. Some of the reasons offered for the perceived increase in popularity and wide

acceptance of online learning among college students in many parts of the world include:

i.   flexibility,

ii.   cost effectiveness,

iii. expanded access to education and a wide selection of courses and programs for non-
      traditional students, and

iv.   customized learning experiences (Josep, 2020, para. 1).

Hybrid Learning: Definition

Hybrid learning, also known as blended learning, is an important component of

technology-assisted distance education. Like online learning, hybrid learning also suffers from

the dilemma of not having a universally agreed upon definition among scholars (Jonas & Burns,

2010; Poon, 2013). Yet, most scholars describe this model of learning using certain common

themes that involve technological platforms and physical learning environments (Poon, 2013).

Descriptively, hybrid learning combines the characteristics of the traditional face-to-face

learning with online learning protocols in order to deliver instruction to students in a formalized

and rich alternating sequence. In other words, blended learning utilizes the same technology

systems and pedagogical design found in wholly online learning courses or programs, in

combination with those of traditional face-to-face, on-campus classroom teaching. This

definition resonates with the ideas of several scholars including Garrison and Vaughan (2008), Littlejohn and Pegler (2007), and Singh (2003) who argue that hybrid learning is a synergy of online and face-to-face environments.

Graham (2006) defines hybrid learning as the "convergence of face-to-face settings, which are characterized by synchronous and human interaction, with Information and Communication Technology (ICT) based settings, which are asynchronous, text based, and involve humans operating independently" (Poon, 2013, p. 274). Interestingly, while this definition by Graham captures some key aspects of hybrid learning, it appears inadequate, particularly in the face of the current improvements in hybrid learning facilitated by technological development. Today, hybrid learning has evolved to include fully synchronous and interactive experiences such as those available in face-to-face learning.

Through varying mixtures of content delivery options and electronic platforms depending on the instructor's plan, students are better able to experience a rich blend of both models of learning in a structured manner that enhances their learning experience, productivity, and academic outcomes. This factor is perhaps the greatest advantage of hybrid learning over traditional online and face-to-face classroom-based learning. Essentially, hybrid learning is more than just a merging of two models. At its core, hybrid learning is the product of a deliberate pedagogical redesigning of two different instructional models, creating a rich learning experience that places students at the center of an interactive learning experience.

Benefits and Challenges of Hybrid/Blended Learning

Like other instructional models, benefits as well as challenges associated with hybrid learning have been identified. Some of these benefits include "improved learning outcomes, access flexibility, a sense of community, the effective use of resources, and student satisfaction"

(Poon, 2013, p. 274). In general, students, whether at college or graduate level, desire positive and enriching learning experiences that are tailored to their unique education needs, many of which are met by a hybrid instructional model. Student satisfaction is a key parameter in determining the success or outcome of any learning model. Similarly, motivated students are more likely to be focused in class, and interact more with both fellow students and instructors, leading to additional improvements in learning. Furthermore, multiple researchers, including Dziuban et al., (2006), Boyle et al., (2003), and others have shown that hybrid/blended learning creates improved outcomes for students including the five benefits already highlighted in the online learning section.

As with learning systems, hybrid learning also has certain unfavorable factors and attendant challenges that may negatively impact not only student learning outcomes, but also their general learning experiences. Some of the notable challenges include: unrealistic expectations, isolation, lack of motivation, poor time management, lack of adequate technological resources and infrastructures, and poor communication and technological skills.

Distance Education in Nigeria

In the Nigeria education space, "online" and "hybrid" education are not particularly common terminologies. Rather, the terms *distance* and *blended* education are used respectively to describe the experiences of learning and teaching in non-traditional contexts. Distance education (DE) has been broadly defined by various authors to include all teaching and learning activities that occur outside the realm of the traditional face-to-face, on-campus contexts, involving the physical separation of student and teacher, with knowledge and instruction being delivered through a variety of media, including print, radio, and Information Communication Technology (Ajadi et al., 2008; Jegede, 2003; Greenberg, 1998; Nakpodia, 2010;). Greenberg

(1998) asserted that the meaning of the term "distance education" has been evolving for the last 25 years as a result of evolution of technological platforms related and innovations used in delivering the knowledge.

Similarly, the United States Distance Learning Association (USDLA), defined distance learning as "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance" (King et al, 2001, p. 5) . Consequently, the definition of distance education offers a more general view that includes but is more expansive than online learning. It is very important to establish a definitive description that clearly distinguishes the meanings, practices, and academic assumptions of distance learning.

The terms *distance* and *blended* education represent important dimensions in this study; therefore, they will appear here often, and will be used interchangeably with online and hybrid education. While distance education is usually described in general terms to include learning activities that occur outside the traditional classroom setting; online education, on the other hand, refers specifically to the learning and teaching experiences mediated by computers, the internet, and other emergent communication technologies.

While distance and blended learning have been in practice for decades in Nigerian education, online education, as a system of learning mediated principally by the internet and other communication technologies is a relatively new phenomenon. Historically, the earliest forms of distance education involving Nigerian students occurred in 1887 through their enrollment in correspondence courses offered by the University of London (Aderinoye & Ojokheta, 2004). Tait (2003), has described the University of London as the first Open University because it was at the center of distance learning for students from different British

colonies across the world. The trend continued to grow in the 1920s and 1930s as progressively more Nigerian students enrolled for distance education degree programs delivered via correspondence, audio recordings, and radio broadcasts (Olakulehin, 2008; Omolewa, 1982; Owoeye, 2004; Tait, 2003).

By the 1960s, following Nigeria's independence from Britain, a few tertiary institutions in the country began to offer certificate programs by distance education in the form of correspondence, with course materials and student responses essentially being shipped back and forth through the post. These correspondence programs were introduced to help alleviate students' financial burdens and to minimize the inconvenience of long-distance travel to the institutions for participation in education. While this model of distance learning may have been considered useful in that past era, the model was certainly not efficient in terms of time management and information processing due to prolonged transit and feedback periods between students and teachers.

One of the earliest examples of distance education in Nigeria was at Ahmadu Bellow University in Zaria. The institution began to offer two academic programs in Teacher In- service Education (TISEP) and National Certificate of Education (NCE) through correspondence in 1967 and 1976 respectively (Olakulehin, 2008). Today, Ahmadu Bellow University remains one of the key Nigerian universities driving the innovation in online and hybrid learning.

Theoretical Framework to Study

Learning is a common word that describes a change in the aptitude or behavior of an individual that is independent of hereditary constitution of the individual. It is an enduring and systematic change in the insights, behavior, perception, or motivation, or a combination of these that is not heralded by genetic inheritance (Bigge & Shermis, 1991). Learning is basic to human

development and influences our lives at every turn, it can produce a misers and philanthropists, traitors and patriots, it accounts for and explains best and the worst of in each of us (Darwin, 1920).

Furthermore, learning is the process by which an activity originates or is changed through reacting to an encountered situation, as long as such change in activity cannot be explained based on native response tendencies, inherited tendencies, maturation, or temporary states of the organism (Hilgard & Bower, 1966; Snelbecker, 1974). Learning ought to involve a noticeable change, this change ought not to be artificially induced. Learning occurs through practice. Any meaningful and purposeful change or learning pivots upon and is governed by theory (Bigge & Shermis, 1991).

Learning theories seek to explain how people acquire, retain, organize, and utilize skills and knowledge (Ormrod, 2015). Learning theories help to evaluate learning processes in terms of defined objectives. Bigge and Shermis (1991) state that

A learning theory is a systematic, integrated outlook in regard to the nature of the process whereby people relate to their environments in such a way as to enhance their ability to use both themselves and their environments more effectively. (p. 3)

Learning theories are organized sets of principles used for explaining how people acquire, retain, and recall knowledge and as useful guidelines for understanding how learning may occur. They also provide useful criteria for selecting instructional tools, techniques and strategies that promote learning (Kelly, 2012).

The purpose of learning theory is to provide principles and frameworks for regulating learning by which teachers and instructional designers can help ensure learning (Driscoll, 2000). There are many different ways of categorizing learning theories, just as there is a plethora of

learning theories themselves. Following the classification by several authors (David, 2015; Kelly, 2012; Mattar, 2018; Siemens, 2005; Strong & Hutchins, 2009), this work will examine what are perhaps the three main classical learning theories, behaviorism, cognitivism, and constructivism. Subsequently, connectivism and situated learning theories will be employed as extended theoretical lenses for designing this study.

Connecting Behaviorism, Cognitivism and Constructivism to the Current Study

As a preamble, it is necessary to state that while situated learning and connectivism learning theories represent the two major philosophical lenses through which this study interprets the research questions and the survey, this literature review encompasses detailed analyses of three classical epistemologies for their perceived importance to this research.

Behaviorism, cognitivism, and constructivism, each with distinct understandings of knowledge and learning, form part of the broad field of philosophical epistemologies that date back to the 19th and 20th centuries. Each of the three theories described below represent very unique perspectives on learning, teaching and knowledge acquisition, each of which may have consciously or otherwise influenced some of the ideas prevalent in connectivism and situated learning theories. However, the goal of this study is not to pursue the detailed analysis of the interconnectedness of these classic epistemologies. In the context of this study, behaviorism, cognitivism and constructionism essentially represent a very broad epistemological background.

Behaviorism

The main proponents of behaviorism are Thorndike (1898), Pavlov (1849) as cited in Clark, 2004), Skinner (1904), and Watson (1878 as cited in Buckley, 1989), who coined the term in 1913 (Frolov, 1937; Malone, 2014). They hypothesized that learning concerns observable change in the behavior of a learner caused by external stimuli in its environment (Thompson,

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2012). Behaviorist learning theories emphasize changes in behavior that result from stimulus-response associations; the external processes of positive and negative reinforcement, and punishment are viewed as effective ways of modifying behaviors and inducing learning (Zhou & Brown, 2017). Behaviorist theory holds that knowledge exists independent and outside the learner; the learner is considered to be a blank slate that must be provided with experience or knowledge that accumulates through the association of stimuli with responses (David, 2015). So, changes in behavior can be explained solely through experiencing rewards or punishments, and without any need to consider internal mental states or consciousness (Kelly, 2012). As explained by Kaya (2016), "Behaviorists handle learning as a mechanical process and give priority to objectivity. According to the behaviorists, human beings are not good or bad from birth. The experiences and environment shape a person's personality" (p. 3). The learning process is seen to be about causing observable change in the behavior of the individual or the acquisition of new skills or behavior strictly from the external environment (Kelly, 2012). It is a learning process that precludes mental abstraction and processes; rather changes in behavior are externally caused and induced. Behaviorism forms the foundational learning theory in the acquisition of skills, knowledge, and general learning processes.

The major challenge with behaviorism as a learning theory is that learners are hardly prepared for creative and imaginative thinking and are ill-equipped for seeking solutions outside the box, since learners are only prepared to respond to external stimuli, recall basic facts and perform presented tasks (Kelly, 2012). Learning should not be restricted to observable behavior—there is more to learning than changes in behaviors (Ally, 2012). As argued by Zhou and Brown (2017), behaviorism takes an overly deterministic view by neglecting the internal psychological and mental processes that facilitate in learning outside the learner's environment.

Both external factors and the internal functioning of the mind are crucial for understanding human behavior and learning.

Cognitivism

For the cognitivists, learning involves the use of memory, mind, mental process, and motivation (Ally, 2012). Cognitivism, a theory developed by Piaget (1952), is a learning theory for describing the processes carried out by human mind in effort to understand the events and situations around them (Kaya, 2016). For the cognitivists, learning is an internal process and what is learned depends not only on external factors but importantly, the internal processing capability of the learner. Cognitivism maintains that learning is through an internal process of acquiring or reorganizing of cognitive structures with the amount of what is learned dependent on the processing capability of the leaner, the depth of the processing and existing knowledge of the learner (Ally, 2008; Chetty, 2013). Cognitivists emphasize complex learning process that involves thinking, language, and problem solving and how an individual organizes the experiences of a situation for a learning encounter (Snelbecker, 1974).

Learning process is not just about responding to stimuli; learning occurs through internal processing of information and attention is given to what goes on in the learner's head and the entire mental processes involved rather than just the observable behavior (Kelly, 2012). For the cognitivists, the mind, thinking and understanding mediate the stimulus-response model of the behaviorist and while learning may result in a change of behavior, it is due to the mental process that crated a change in understanding (Reeve, 2013). As expressed by Chetty (2013), the cognitivist view of teaching and learning process entails memory, thinking, reflection, abstraction, motivation, and meta-cognition. For the cognitivist, mental processes are essential to

learning process and understanding how the learner receives, processes, organizes and retrieves information in a learning process is crucial.

The main weakness as pointed out by Chetty (2013) is that cognitivism is a teacher-centered approach to learning that assumes the learner to be a passive participant in the learning process. Given that cognitive learning theory focuses on the internal mental process, it does not pay adequate attention to other external factors that might influence learning like biological makeup of the individual, genetics, and hormonal imbalance in the individual or even the environmental configuration in a learning process (Ally, 2008). Similar to behaviorists, cognitivists have a predetermined and finite learning goals or objectives that can easily limit the complexity of learning process and varied possibilities in a learning process (McLeod, 2013).

Constructivism

Constructivism is a complex epistemological theory with varying interpretative understandings depending on the scholar's approach. As a learning theory, constructivism was developed by Jean Piaget, a Swiss psychologist whose great intellectual focus on the education of children led him to the theory of cognitive development (Munari, 1994). Piaget's theory of cognitive development argues that knowledge is constructed by the learner. Against the prevailing perception among other philosophers and psychologists that knowledge is simply transmitted, Piaget argued that the learner consciously constructs his or her own unique meanings through existing knowledge structures at various stages of life. Subsequently, Piaget's notion of constructivism was challenged by later scholars, like Lev Vygotsky and John Dewey who both introduced their own slant of constructivism.

Lev Vygotsky and John Dewey were instrumental in the development of a widely accepted interpretation of constructivism as a learning theory (Mattar, 2018). The theory is based

on the premise that we construct or create our perspective of the world, our reality and what we call knowledge out of the experience of the learner (Kelly, 2012). For the constructivists, learning involves the active participation of the learner, as knowledge is not received from the outside or from someone else, the individual learner interprets and processes what is received through the senses to create knowledge (Ally, 2008). The learners are responsible in creating their understanding of the world and using what they know as result of previous experiences in forming new experience or knowledge; the learners are at the center of the learning process while the teachers are facilitators in the learning process. With the constructivists, learning is "the activity is not one of acquiring a fixed body of knowledge, but of building concepts and explanations that allow us to function effectively in a given context and that adequately account for the circumstances presented to us" (Boethel & Dimock, 2000, p. 6). Learning for the constructivists is a socially and experientially enacted with personal meaning created by each learner (Strong & Hutchins, 2009). Learning is essentially a social activity through which the leaners' new knowledge is created through their prior experience, it emphasizes self-directed and negotiated curriculum against the teacher-directed approach to learning (Gundu & Hursen, 2015). Constructivists encourage the learner to construct knowledge instead of knowledge being handed down to the learner (Duffy & Cunningham, 1996). As maintained by Kop and Hill (2008), for the constructivists, learning is a relational activity between the leaners and their environment.

The major drawbacks of constructivism include the fact that constructivism sometimes denies objective knowledge, which exists outside of the learner. Furthermore, the teacher as the facilitator in this learning theory cannot possibly respond to the varied interests of the students who come with their different prior knowledge and experience, considering the limited resources

that formal educational structures present (Boethel & Dimock, 2000). Also, there is an implicit assumption that the self-directed learners have enough prior knowledge and skills to engage in a meaningful and productively learning activities, but experiences have shown that this is not always the case (Rowe, 2006). Constructivism like behaviorism and cognitivism demands the demonstration of ability or appropriate outcome (Chetty, 2012). With the shortcomings of these learning theories, a more suitable learning theory that will integrate the strengths of the theories for a design of online cum hybrid learning becomes necessary. Essentially, all three stated learning theories encompass in some measure or another, certain elements that online and hybrid education involve. However, none of them fully captures the experience of online and hybrid education. As a technology mediated system of learning, it is important to note the fact that while objective (empirical) knowledge does exist the process of acquiring the knowledge may be .

Paradigm Shift: Learning Theories for a Digital Age

Kuhn (2012) characterizing the process of a shift in epistemological paradigm explained that significant and substantiated abnormalities mounting against existing paradigm opens it to crisis. With the crisis, new ideas and theories are tried, out of which a new paradigm emerges with new followers to replace the old paradigm. Kuhn (2012) maintained, "Earlier generations pursued their own problems with their own instruments and their own canons of solution" (p. 140). Thus, a technoscientific generation with exponential advances in scientific and technological innovations necessarily requires a shift in the traditional epistemological and pedagogical approaches to learning (Santally & Senteni, 2005).

Every generation has to deal with its pedagogical problems with its instruments and canons of solution. Furthermore, Mattar (2018) emphasized,

The Web 2.0 movement and new tools such as blogs, vlogs, and microblogs, wikis,

podcasting, social bookmarking and social networking contributed to replace passive

teaching methodologies by more active ones including student-centered learning, the co-

creation of knowledge, and peer review assessment strategies. (p. 202)

Chetty (2013) explained, as 'digital natives' – speakers of the digital language of technology, the

twenty-first century learners have changed radically from their predecessors. As such, designing

the space, process and instructional material has to factor in this shift in epistemological and

pedagogical paradigm for effective and enhanced learning.

Learning theories describe the process of learning and provide an important framework

for an effective instructional design (Dunaway, 2011). Educators adapting to new learning

environments turn to learning theories for guidance, especially if the existing theories like

existing paradigms, no longer fully or only partially explain learning in the new learning

environments (Ally, 2008; Duke et al., 2013; Goldie, 2016; Siemens, 2005; Sitti et al., 2013).

Driscoll (2000) explained that effective teaching is pivoted and informed by theories of learning.

As explained above, the three major traditional learning theories commonly employed in the

creation of instructional environments are behaviorism, cognitivism, and constructivism (Mattar,

2018; Siemens, 2005). Siemens pointed that most of these learning theories do not address

learning that occurs outside of people, which may be stored and manipulated by technology and

the need to evaluate learning in a context where knowledge is abundant. Sitti et al. (2013)

explained,

ICT has become an indispensable part of the 21st century. Having basic ICT skills is now

seen as an important attribute that students should possess in order to be successful in

life. Because of the digital age, there is new learning theory which related ICT workplace

and 21st century skill. It is the connectivism learning theory. (p. 316)

Connectivism, not discarding the existing learning theories, attunes to and accommodates

the new pedagogical realities in a digital age. As insisted by Goldie (2016), connectivism is one

of the most prominent of the network learning theories, which have been initiated as

foundational for e-learning environments in a digital. As an alternative learning theory,

"connectivism acknowledges the role of information technology in the processes of accessing

information from multiple sources and the development of skills for evaluating connections

between different information sources in a dynamic information network" (Dunaway, 2011).

Thus, connectivism is a learning theory that adjusts to the realities of information technologies

and other collaborative means of acquiring knowledge in world suffused with networked

information resources. In designing online and hybrid learning for effective and efficient

learning outcome, connectivism remains an important learning theory.

Connectivism Theory for Online and Hybrid Learning

As defined by Downes (2007), connectivism is the thesis that knowledge is consumed

and distributed across a network of connections, as such, learning is pivoted on the ability to

construct and traverse these networks. Knowledge is the set of connections formed by actions

and experience based on a network of social connection (Downes, 2007). Siemens (2005)

maintain, "Connectivism presents a model of learning that acknowledges the tectonic shifts in

society where learning is no longer an internal, individualistic activity . . . Connectivism provides

insight into learning skills and tasks needed for learners to flourish in a digital era" (p. 8).

Connectivism as a theoretical framework for understanding learning acknowledges networked

information technology as an important aspect of learning processes (Dunaway, 2011). Central to

the understanding of connectivism as a theory for online learning is the learning community; learning occurs through the process of sharing knowledge through a learning community (Kop & Hill, 2008). Connectivism is a learning theory that describes how Internet technologies are shaping, informing, and creating new opportunities for learners to share information through and across World Wide Web using Web browsers, email, wikis, online discussion forum, social networks, YouTube, learning management systems, et cetera. (Csíkszentmihályi, 2015). The originators and proponents of connectivism as a learning theory, Siemens (2005) and Downes (2005) incorporated the use of network in understanding learning in a cyber mediated learning context and world (Bell, 2011; see Figure 5).

Figure 5

The Framework of Connectivism
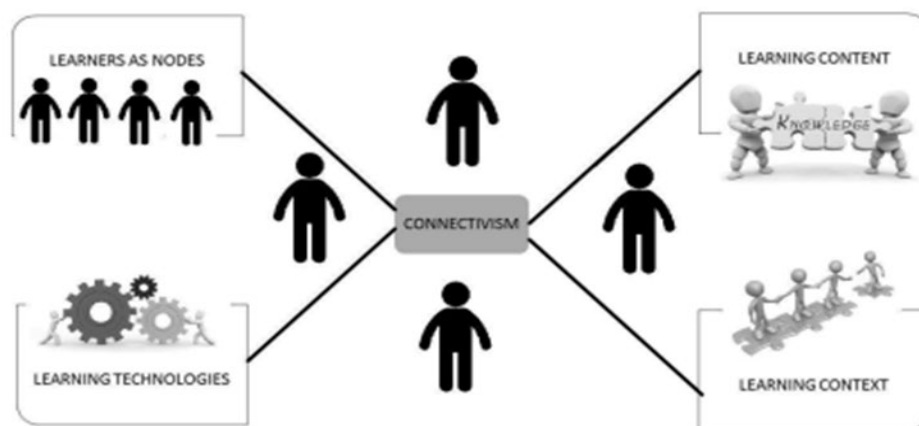
Note. "Connectivism: Probing prospects for a technology-centered pedagogical transition in religious studies 1," by D. Chetty, 2013, *Alternation Special Edition*, *10*, p. 187) (https://www.researchgate.net/publication/269071838_Connectivism_Probing_Prospects_for_a_ TechnologyCentered_Pedagogical_Transition_in_Religious_Studies_1) In the public domain.

Drawing from biological models that explain the relationship of the brain to the neural, and other coordinated systems as a network of parts that connect to form a whole, Downes

employed connectivism as epistemology of connective knowledge that can have pedagogical

implication in cyber age (Bell, 2011). Downes (2005) maintained, while the human brain

exhibits some scale-free properties, it is however not as imbalanced as even things like the

economic system or the World Wide Web; the brain is densely connected, but the connections

are enhanced through the networking of the neurons. Downes (2005) insisted, in any given

system, there will be a combination and connection-building mechanisms and connective

knowledge is similar to such mechanisms. However, he warned about how such connective

knowledge mislead and delude as any knowledge-forming community can be easily misled or

deluded. Siemens (2005) on his part argued,

> A network can simply be defined as connections between entities. Computer networks,
>
> power grids, and social networks all function on the simple principle that people, groups,
>
> systems, nodes, entities can be connected to create an integrated whole. Alterations
>
> within the network have ripple effects on the whole. (p. 4)

Hence, Siemens (2005) asserted, "Connectivism is the integration of principles explored

by chaos, network, and complexity and self-organization theories. Learning is a process that

occurs within nebulous environments of shifting core elements – not entirely under the control of

the individual" (p. 5). Connectivism has therefore come to be assumed as a pedagogical concept

and theory that describes a learning community as a cluster of networks, systems, interaction,

associations, sharing, etc. associated with knowledge management process in the cyber age.

Siemens (2005) articulated the principles of connectivism as rooted in the understanding that,

> (a) learning is a process of connecting specialized nodes or information sources, (b)
>
> learning and knowledge rests in diversity of opinions, (c) learning may reside in non-
>
> human appliances, (d) capacity to know more is more critical than what is currently

known, (e) nurturing and maintaining connections is needed to facilitate continual

learning, (f) ability to see connections between fields, ideas, and concepts is a core skill,

(g) currency (accurate, up-to-date knowledge) is the intent of all connectivist learning

activities (h) decision-making is itself a learning process. Choosing what to learn and the

meaning of incoming information is seen through the lens of a shifting reality. While

there is a right answer now, it may be wrong tomorrow due to alterations in the

information climate affecting the decision. (p. 5)

The cyber age is a networked age. In this age, we do not have control over what we learn

as people in the network continually change information, requiring constant learning of new

information and unlearning of old information and knowledge (Ally, 2008). Therefore,

connectivism theory represents one of the pedagogical paradigms for the cyber age, where

individuals learn and work in a networked environment. In connectivism, learning occurs when

knowledge is gained through the process that allows the learner to connect to and share

information in a learning community (Kop & Hill, 2008; Sitti et al., 2013). As a learning theory,

connectivism moves from hierarchies and traditional models of learning to community of

learning where the network of connections plays a prominent role (Siemens, 2008).

Connectivism builds on the traditional learning theories of behaviorist, cognitivist,

constructivist, and humanist to provide a new theoretical perspective in a cyber age (Dunaway,

2011). Connectivism posits that knowledge and learning resides in a community and this

community is characterized by proliferation of information, sharing of knowledge across

networks and constant modification of information and knowledge (Downes, 2007; Dunaway,

2011; Kop & Hill, 2008; Siemens, 2005; Strong & Hutchins, 2009). Since knowledge is shared

across networks and learning is essentially one of forming network of connections and

identifying the attendant patterns, learners need to have the skills to seek out current information and the ability to filter secondary and extraneous information (Kop & Hill, 2008; Siemens, 2005). Strong and Hutchins (2009) explained that the thrust of connectivism is that learning is a networked phenomenon that is shaped, and supported by the forces of technology, World Wide Web, and socialization. The advancement in information technology has offered new dimensions and realities in learning beyond the traditional learning theories and platforms. Connectivists maintain that knowledge and cognition are distributed across networks of people and learning as enhanced by technology is the process of connecting and navigating those networks (Siemens & Tittenberger, 2009).

With behaviorism learning theory, the emphasis is on observable behavior, for cognitivism, it is about the process of learning, which involves the active participation of the learner, for constructivism, the learning focuses on knowledge and meaning created through engagement and participation that puts into consideration the social and cultural factors, but for connectivism, it is about knowledge and meaning gained and distributed within a network of socially and technologically enhanced process (Strong & Hutchins, 2009). Behaviorism assumes the learner to be passive in the learning process, only responding to external stimuli; the learner is a clean slate whose behavior is to be shaped through positive reinforcement or negative reinforcement (learning theory). Cognitivism considers the learner to be an information processor; the learner is not a programed animal, basically responding to stimuli, they proponents of this learning theory will argue (David, 2015). Human beings are rational learners who take in information, process the information and act in line with the consequences of the information, the cognitivist would argue (David, 2015). Learning is mental activity that cannot be subsumed into reaction to stimuli or manifestation of external behavior. For the

constructivism, learning is an active constructive process with learners participating in the creation of objective reality (David, 2015). Therefore, behaviorism, cognitivism and constructivism as learning theories are crucial in many environments; but connectivism accommodates these dimensions of learning process and adapts into situations where learning moves into informal, networked, and technological enabled context (Willeke, 2011). In this way, connectivism incorporates the basic features of other learning theories. As explained by Tschofen and Mackness (2012), "Learning in connectivism terms is a network phenomenon, influenced, aided, and enhanced by socialization, technology, diversity, strength, complexity, and interrelatedness" (p. 125). Connectivism learning theory appreciates how digital technologies have contributed to collaborative epistemology in which learning is now a networked activity and construction; learning is constructed by a group and no longer by an individual (Mattar, 2012).

Drawbacks of Connectivism

Despite the strengths of connectivism as a learning theory in the digital age, some challenging characterizations must be put into consideration while using it as theoretical framework to design online learning. First, connectivism is not a substantive or independent learning theory of traditional learning theories as it appropriated and adopted some of the characteristic features of the traditional learning theories. Connectivism embodies and emphasizes the social, situational, and relational aspects of knowledge and learning that are identifiable with other learning theories, particularly, constructivism (Bell, 2008; Goldie, 2016; Kop & Hill, 2008).

Second, much as knowledge and learning can be a shared and networked process with connectivism, learning and knowledge may not reside in non-human appliances and machines

(Goldie, 2016). Machine can be useful in enhancing human connectivity, but machine cannot do this independent of the human beings as the originator of the information, knowledge, and learning. Learning process and the cycle of knowledge starts with a knowledgeable other before it is networked, and if a teacher or a more experienced peer does not originate and support the networking of knowledge, the quality of what is learned or shared can be compromised (Mattar, 2018; Willeke, 2011).

Third, connectivism appears to be vague about the role of teachers or instructors since the focus is more on the participant and their connectedness in the learning process (Bates, 2016; Mattar, 2018). The leaner-to-instructor, instructor-to-learner, and learner-to-expert interactions and interfaces that are necessary dimensions of learning can easily be undermined (Ally, 2008). The quality of learning material or the knowledge that is being shared by networked learners has to be assessed and moderated by an expert or instructor.

Fourth, connectivism, because of its global outlook, easily undermines the local and cultural content that are necessary for important pedagogical experience of the learner. As expressed by Kop and Hill (2008),

> Online network might be open and may facilitate connections, but local culture and values cannot be incorporated all that easily as the online network are global, with diverse participants, each bringing his or her own ideas and background to the fore. This might stimulate debate, but the local community and its development would be of less important than the dominant culture on the network. (p. 11)

Connectivism creates its model around the fact that society is no longer constantly intrinsic and individualistic (Willeke, 2011)

Fifth, connectivism depends on World Wide Web and Internet facilities for its effectiveness. Therefore, the lack of these facilities may constitute serious challenge to its effective functionality as a learning theory.

Situated Learning Theory

The second theoretical lens, which this study on students' perception of their learning experiences relies, is the situated learning. Situated learning theory was developed by Jean Lave and Etienne Wenger as a model of learning in communities of practice. Following the influences of earlier psychologists such as John Dewey and Lev Vygotsky, whose works echo the importance of social interaction in learning, Lave and Wenger (1991) posit that learning occurs through active participation in the learning experience (Lave & Wenger, 1991). This theory was expounded from a similar existing concept of situated cognition as defined by John Brown, Allan Collins and Paul Duguid in 1989 (Besar, 2018). As William Hanks sums it, situated learning essentially focuses on the "relationship between leaning and the social situations in which it occurs" (Lave & Wenger, 1991, p. 14).

For Lave and Wenger (1991) , situated learning theory involves the process known as *legitimate peripheral participation.* This term describes the experiential process whereby new members of a group (community of practice) learn or acquire new knowledge or expertise through active participation and negotiation of meanings with other more knowledgeable participants (p. 29). In this way, the neophytes gradually move to full participation in the sociocultural community of practice. Stein (1998) affirms this view by stating, "situated learning is essentially a matter of creating meaning from the real activities of daily living". No doubt, this theory raises some questions for scholars who support the cognitive process of learning; that is, the distinctive separation of learning activities, from the learner, as well as the learning space

such as practiced in most formal learning classrooms. The authors' reference to 'situatedness' in this theory is meant to emphasize the view that "learning is an integral and inseparable aspect of social practice" (Lave & Wenger, 1991, p. 31).

Accordingly, the theory implies no distinction between knowledge and action; knowing and doing, or the act of learning and what is being learnt. In other words, learning ought to be contextual; that is, situated and embedded in a particular cultural space lived out through practice. Hence the claim that "learning is not merely situated in practice – as if it were some independent reifiable process that just happened to be located somewhere; learning is an integral part of generative social practice in the live-in world" (Lave & Wenger, 1991, p. 35).

Situated learning theory, over time, has become a credible alternative to other major perspectives on cognitive learning. Perhaps, this is why William Hanks asserts, the theory has contributed to the growing body of knowledge in human science that strives to make meaning of the situated nature of human understanding and communication (Lave & Wenger, 1991).

Application of Situated Learning Theory to the Research

Several reasons could be adjudged as justification for the choice of this learning theory as a relevant lens of analysis. Consequently, while situated learning theory, like any one of the many existing learning theories, is unable to proffer complete interpretative representation for all understanding of learning, the theory holds some promise for in-depth analysis of this study. As a theoretical lens for interpreting students' perceptions of their learning experiences, situated learning theory holds certain core premises that can help to offer better understanding. These major guiding premises include: (a) Learning is grounded in the actions of everyday situations. (b). knowledge is acquired contextually and transmitted to other similar contexts through practice; (c). learning is the result of social process encompassing ways of thinking, perceiving,

problem solving, and interacting in addition to declarative and procedural knowledge; and finally (d). learning is not separated from the world of action but exists in robust, complex, social environments made up of actors, actions and situations (Anderson et al., 1996; Stein, 1998; Wilson & Myers, 2000).

Each of the four guiding premises of situated learned gleaned by scholars, in some ways, fulfill some of the basic expectations of not just online and hybrid learning, but also the ways in which learning impacts students. The thrust of this research is to understand the perceptions of college students who participate in online and hybrid programs at Nigerian universities. Consequently, online and hybrid students and their instructors constitute what is comparable to Lave and Wenger's community of practice, where the new members (students) learn through active participation in the online classroom to manage their time, use the technology (artefacts), and gain expertise (useful knowledge) for the purpose of being responsible and productive adults in their communities.

Another idea projected by this theory is that knowledge should be taught in context, rather than in abstract (Lave & Wenger, 1991). In other words, learning is a social cultural experience, mediated through the relationships that an individual forms with his community of practice. Consequently, learners who are cognitive apprentices ought to utilize learning tools just as expert practitioners use them in the community. Here, the concept of community is important because it plays a central role as the space within which knowledge is negotiated. In explaining this view of community in the situated learning, Besar affirms Lave and Wenger by stating that "within a community of practice, group members jointly share and develop practices, learn from their interactions with fellow members, and gain opportunities, personally, professionally or intellectually (Besar, 2018).

In a rather emphatic style, situated learning encourages the contextualization of learning or should I call it peripheral participation. Brown, Collins and Duguid argue that "by ignoring the situated nature of cognition, education defeats its own goal of providing useable, robust knowledge" (Brown et al, 1989, p. 32). Although our world today has become more globalized than ever before due to the influences of technology, communication and transportation, Lave and Wenger's idea of a contextualized learning is one that resonates with the outlook of this study. A person's intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a social – cultural practice. This social process, includes, indeed it subsumes, the learning of knowledgeable skills (Lave & Wenger, 1991). In spite of the globalized nature of our world and the interconnectedness of businesses and life in general, the need for contextual learning and knowledge which is rooted in specific contexts and cultural communities are equally important and greatly encouraged.

Limitations of Situated Learning Theory

Although Lave and Wenger's (1991) situated learning theory has demonstrated usefulness in advancing the understanding of learning in the socio-cultural context particularly of the community of practice, the theory has also raised some questions and created areas of contention among other scholars. For example, learning has a broad spectrum of meanings that include the process of cognitively acquiring decontextualized and abstract knowledge that does not necessarily involve any participation or use of artefacts contrary to the view espoused by Lave and Wenger's situated learning theory. Most formal learning programs fall into this category. As Resnick (1987) right points out, study on daily cognition attests to the many differences between formal and informal learning protocols. Essentially, situated learning seems to typically support informal learning settings often experienced in traditional trade and craft

apprenticeship rather than in formal sophisticated and cognitive learning contexts where knowledge is not necessarily acquired through participation or 'doing'. Choi and Hannafin (1995) argue that "formal learning emphasizes abstract and systematic problem-solving strategies where students are taught procedures for solving problems – procedures presumed to be sufficiently robust as to permit application across diverse problem contexts" (p. 54).

Furthermore, Lave and Wenger (1991) maintain that the process of legitimate peripheral participation is not necessarily an educational form, nor a pedagogical system or a strategy for teaching; rather, it should be viewed as an analytical lens for understanding learning. In some ways, they recognize the potential difficulties that the issue of schooling presents in view of the nature of their situated learning theory. Accordingly, they intend to make a distinction between intentional education form and learning. Consequently, they argue that learning occurs with or without intentional instruction. This view seems to be overreaching for situated learning, and at the same time, not completely representative of the cognitive, intentional system of formal learning.

Other critiques against situated learning theory come from Fenwick (2001) as well as Murray et al, (2014) who claim that situated learning is not recommended in contexts where students' learning are unsupervised. Accordingly, they argue that situated learning is unable to regulate behavior where participation by new members could most likely reinforce some negative and unwholesome practices that a community might be striving to eradicate (Besar, 2018). Consequently, Salomon and Perkins (1998) posit that peripheral participation in a community could potentially expose new learners to undesirable practices, wrong values and strategies, which could disrupt the individual and collective objectives.

Satisfaction in Education

Universities now understand that to attract and retain academically sound and tuition paying students, they have to act more as a service industry by placing great emphasis in meeting students' needs (Cheng & Tam, 1997). The necessity of assessing student satisfaction in learning experience is made more pertinent because students have become more aware of their rights, and intend to receive their money's worth both in the overall student experience and also in the academic outcome (Elliott & Shin, 2002). These factors determine to a great extent the choice of schools they make. Scholars like Sevier (1996) affirm university education to be more than the academic program. He argues that the measure of success in a university encompasses the totality of student' social, academic, physical and spiritual dimensions (see Figure 6).

Figure 6

Vertical and Horizontal Views of Satisfaction

Vertical and Horizontal Views of Satisfaction

Viewpoint	Antecedents	Core concept	Consequences
Individual: One transaction	Performance or service encounter	Transaction-specific satisfaction	Complimenting, complaining, word of mouth
Individual: Time accumulated	Accumulated performance history	Summary satisfaction	Attitude, loyalty, switching
Firm's customers in the aggregate	Reputation, product quality, promotion	Average satisfaction, repurchase rates, competitive ranking	Share, profits
Industry or commercial sector	Average quality, monopoly power	Consumer sentiment	Regulation, taxation
Society	Product and service variety, average quality	Psychological well-being	Tranquility, productivity, social progress, alienation, consumerism

Note. Satisfaction: A behavior perspective on the consumer, (2nd ed.) by R. Oliver, 2015, Routledge Taylor & Francis Group.

Satisfaction in education experience has become a key factor indicator to most students as well as schools in their product offering. Hence it is necessary to understand what is the basic meaning of satisfaction. Oliver (2015) defined Satisfaction as the consumer's fulfillment

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response. It is a judgment that a product/service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption- related fulfillment, including levels of under- or over fulfillment.

The fact that people talk of satisfaction in their consumption or experience of anything implies the possibility of dissatisfaction. Thus, dissatisfaction is considered to be the lack of, or under fulfillment of an anticipated expectation from an experience (Oliver, 2015). Accordingly, just like other consumers of goods and services, students also experience most of the psychological characteristics associated with services. There are horizontal and vertical views of satisfaction as shown in Figure 6.

Student satisfaction denotes the positive appraisal of a student's subjective evaluation of the various outcomes and experiences associated with learning (Bolliger & Wasilik, 2009; Oliver & DeSarbo, 1989). In addition, Brown et al (1998)*,* stated that students' overall satisfaction with a university hinged on their assessment of the academic course as well as other curriculum related factors provided by a given institution. No doubt, in an environment of increasing competition by higher education institutions and universities for student enrolment, student satisfaction has become an important and integral part of education today. This study explores the experiences of students in online and hybrid learning at Nigerian universities. Consequently, one of the major variables that will be measured by the survey is the satisfaction indicators which would be further explained in the Chapter Three.

Summary

Chapter Two extensively reviews the essential literature around the subject areas of this study namely, online and hybrid learning in Nigeria universities. An in-depth look at the history of education and the current state and policy of the tertiary education system in Nigeria formed

the bedrock upon which the discussion of the relevant philosophical and learning theories rest. Furthermore, beginning with three educational psychologies of behaviorism, cognitivism, and constructivism as foundational pillars, the literature review makes a case for situated learning by Lave and Wenger (1991), and connectivism by Siemens (2005) and Downes (2008) as the desired learning theoretical frameworks to address the four research questions. In conclusion, the literature review prepared the ground for the discussion of the study methodology and survey instruments.

Chapter Three: Research Design and Methods

Introduction

A goal of academic research is to deepen knowledge. Research that involves educational settings lends clarity and insight into issues that affect academic learning. Simply put, "research is about providing answers to questions" (Toshkov, 2016, p. xv), not in a manner that generates boredom, but a liberating fun as Toshkov argues. Knowledge is liberating and empowering. True knowledge is a powerful force of transformation and development in society. However, in scientific research, procedures are essential in order to minimize or eliminate biases and ensure objectivity in findings.

As stated in the preceding chapters, the purpose of this research was to understand the perceived experiences of students who are currently enrolled or have participated in online learning and its hybrid subset at Nigerian higher education institutions with particular focus on the universities. The study aimed to better understand the effects of the distinct components of online education on students' experience in Nigerian higher education institutions. For the purpose of this study, students' experience constituted students' interaction with technology, peer-to-peer interaction, and student instructor interaction in the online environment. In this chapter, the design of the study reflects a purposeful synergy between the various components namely, the theoretical framework, the learning theories, the methodology and methods, and how these help to answer the research questions.

Overview of Design Framework

In this section on the design framework, considerable attention will be devoted to the discussion of the theoretical and philosophical framework. Creswell (2014) states that a broad

research approach refers to the strategy with which a researcher intends to conduct a study (see Figure 7).

Figure 7

Researcher's Conceptual Framework for Online and Hybrid Learning
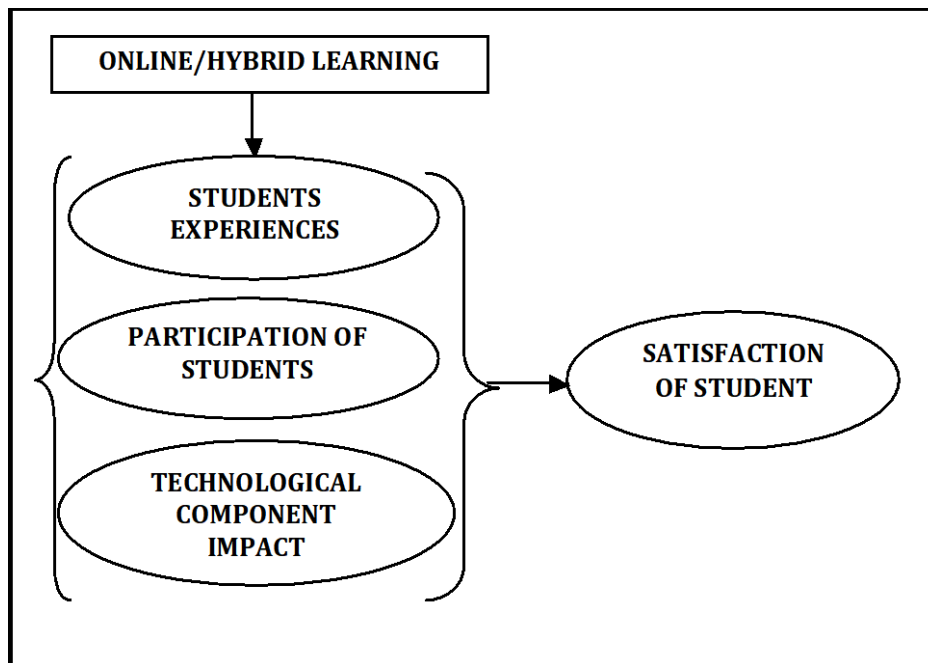
This encompasses the theoretical and philosophical roadmap, as well as the design of the study and the attendant methods for approaching a study. One established procedure that acts as a guide for every study involves the systematic integration of both philosophical and theoretical frameworks to the methodology and methods. This process is especially important in view of the maze of epistemologies and varying theories with which a researcher must contend. Consequently, the successful design of any research rests on the harmony between the various components of the study including the way the epistemological and philosophical frameworks help to address the research questions. Crotty (1998) proffers a four-level research framework

that includes epistemology, theoretical perspectives, methodology and methods. However, for

this study, Creswell's triangular research framework shall be adopted as seen on Figure 8.

Figure 8

Adapted from Creswell's Research Framework
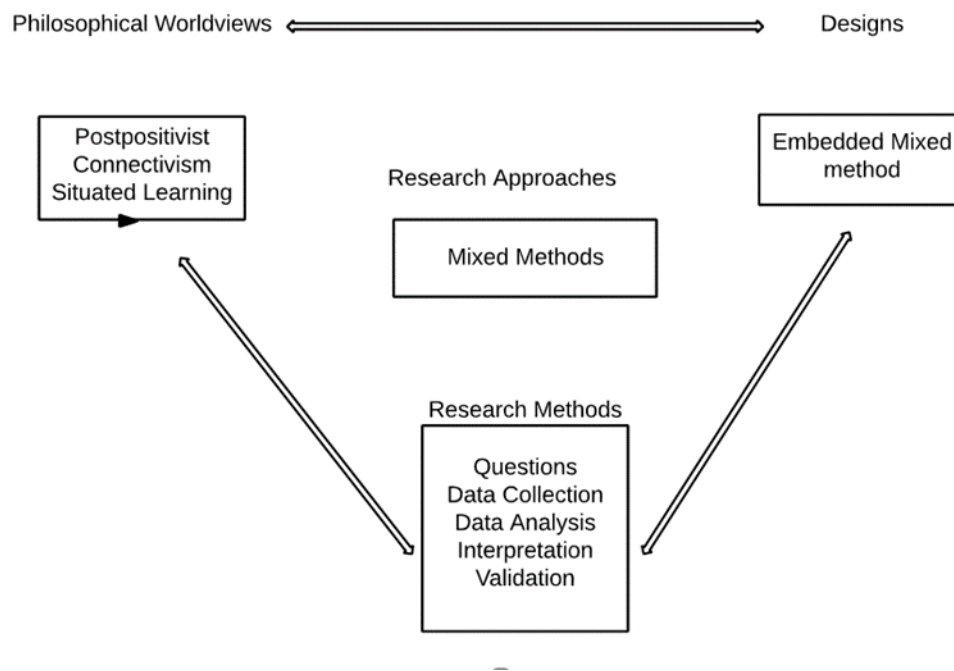
Note. Research design: Qualitative, quantitative and mixed methods approaches (4th ed., p. 5)
by J. W. Creswell, 2014, Sage.

Accordingly, this study explained in the methods, how the techniques and procedures of

data gathering and analysis will facilitate our research questions. Furthermore, the theoretical

perspective guiding the design or methodology of a study needs to be clearly stated. Finally, a

good study consists of a theory of knowledge or epistemology that helps to lend meaning to the

theoretical perspective (Crotty, 1998, p. 3). D. Gray (2014) asserts the importance of creating a

synergy between the epistemology, theoretical perspective, methodology, and the methods. He

references Crotty's (1998) research framework as a good example of an academic synergy in

research. Besides Crotty's, (1998) other variations of research frameworks have been proffered

by other scholars. Examples include the Research Onion by Saunders et al. (2016), and Creswell's (2014) three components of a study approach that appears to merge both the epistemological and theoretical perspectives into one broad category of philosophical assumptions (p. 5). While Crotty's (1998) framework appears to find broad resonance with various researchers including David Gray, this study draws on Creswell's (2014) research framework.

The above research framework is adapted from Creswell, (2014). Creswell advocates a unique theoretical framework that shows the interconnection among the various components of a research. In other words, the framework creates an interconnectedness between philosophical worldviews, research designs and research methods. Epistemology is about knowledge or better still about what it means to know (P. Gray, 2014). This study is based on the post-positivist epistemology, which is sometimes referred to as the scientific research approach because it supports research centered on empirical science (Creswell, 2014).

Much like the positivist epistemology, post-positivism, which is an outgrowth or extension of positivism, is a theoretical perspective that is closely associated to objectivism. The post-positivist philosophical perspective developed after the positivist perspective in the 19th century by scholars including Comte, Mill, Newton, Durkheim, and Locke (Smith, 1983). Later on, other recent scholars including Popper, Bronowski, Philips, Hughes among others (Crossan, 2003) joined in the field. Post-positivism is a relatively new and developing epistemological paradigm not representative of a specific perspective, but describes a set of alternative perspectives similar to positivism. In other words, although post-positivism initially developed as part of the critique against positivist ideas, it has, over time, begun to develop into its own unique perspective (Carpiano & Daley, 2006). Essentially, the post-positivist philosophy builds upon the

core principles of positivism, which holds that "things can be studied as hard facts and the relationship between these facts can be established as scientific laws" (Crossan, 2003, p. 49). Consequently, post-positivists argue that "there is an independent reality to be studied, but that all observation is inherently fallible" (P. Gray, 2014, p. 23).

Furthermore, like positivism, post-positivism centers on the idea of cause and effect. In other words, in the positivists' worldview, every action begets an outcome, which can be scientifically studied and verified. Essentially, besides the basic principles espoused by positivism, the post-positivists emphasized the importance of the non- rigid and contextual reality of the researcher. Hughes and Huby (1994) argued that the contextual realities of researchers have certain level of influences on their study, because no research is conducted in a vacuum. Some of the identifiable realities that may influence a researcher's worldview include culture, gender and cultural beliefs (Crossan, 2003). Essentially, the relevance of post-positivist to this study centers on some of the following core assumptions: the scientific idea of cause and effect – where every outcome is determined by a cause, that knowledge is conjectural, i.e., evolving and open to new understanding and interpretation, that research is about testing out new theories, and that data, empirical evidence and rationality help to shape knowledge, and that objectivity is a necessary ingredient for a reliable study (Creswell, 2014). These highlighted points make post-positivism an appropriate epistemological perspective for this mixed method study.

How the Learning Theories Guide the Design of Study

As has been pointed out in various studies, many budding researchers, especially doctoral dissertation studies, tend to understate or fail to clearly show how the theories drive the research questions and the survey questionnaires or interviews (Grant & Osanloo, 2016). In this section,

effort is made to clearly state the importance of establishing the connection between situated

learning and connectivism learning theories, and how ideas from these two theories of learning

help to shape our research questions and the survey questionnaire. Importantly, it is expedient to

state that while this study follows on the post-positivist epistemology or worldview, the design of

the research questions and survey questionnaire were conducted through the lenses of situated

learning and connectivism learning theories. These two learning theories proffer frameworks that

are well suited for this study due to their unique focus on the aspect of learning with which the

study is concerned.

Connectivism, which is a theoretical framework for the study of learning in the digital era

invariably represents an important tool in exploring and understanding the disruptions that online

and hybrid learning technology create in the lives of university students and graduates in

Nigerian higher education context. The four research questions for this study were developed

through the worldview of the connectivist theory. Similarly, situated learning, developed by

Lave and Wenger (1991) address the process, by which a learner (a neophyte or apprentice), who

is participating in a knowledge enterprise, makes progress to full participation as the

knowledgeable member of the community of practice. This process is referred to as the

"legitimate peripheral participation" (Lave & Wenger, 1991, p. 29). No doubt, there are certain

challenges and complexities involved in this learning process. The purpose of this study was to

explore students' experiences of online and hybrid learning at Nigerian higher education

institutions. One of the important factors that defined this study was the context in which the

learning was taking place. Every learning context and culture is unique with its own peculiarities.

Therefore, the framing of the research questions as well as attendant survey questionnaires for

this study were closely guided by the ideas from situated learning. Several of the survey

questionnaires explore the contextual and technological impacts on students' learning experiences using both close ended quantitative and open- ended qualitative questions.

Post-Positivist Epistemology

Much like the positivist epistemology, post-positivism, which is an outgrowth or extension of positivism, is a theoretical perspective that is closely associated to objectivism. As the name suggests, the post-positivist philosophical perspective developed after the positivist perspective in the 19th century by scholars including Comte, Mill, Newton, Durkheim, and Locke (Smith, 1983). Later on, other recent scholars including Popper, Bronowski, Philips, Hughes among others (Crossan, 2003) joined in the field. Post-positivism, though a relatively new and developing epistemological paradigm, represents the traditional form of research method (Creswell, 2014). Like positivism, post-positivism worldview is sometimes referred to as the scientific research approach because it supports research centered on empirical science. It holds the determinist approach to life – that is, the philosophy of cause and effect (Creswell, 2014).

Interestingly, it appears that not all scholars agree on the smooth and straightforward development of post-positivism from positivism. Carpiano and Daley (2006) argue that post-positivism initially developed as part of the critique against positivist ideas, and over time, has developed into its own unique perspective. Notwithstanding the views held by Carpiano and Daley (2006) that suggests an antithetical relationship between the two similar epistemologies, post-positivist philosophy, in my view, builds upon the core principles of positivism. The positivists argue "things can be studied as hard facts and the relationship between these facts can be established as scientific laws" (Crossan, 2003, p. 49). Similarly, the post-positivists argue that

"there is an independent reality to be studied, but that all observation is inherently fallible" (P. Gray, 2014, p. 23).

Furthermore, like positivism, post-positivism centers on the idea of cause and effect. In other words, in the positivists' worldview, every action begets an outcome, which can be scientifically studied and verified. Essentially, besides the basic principles espoused by positivism, the post-positivists emphasized the importance of the non- rigid and contextual reality of the researcher. Hughes and Huby (1994) argued that the contextual realities of researchers have certain level of influences on their study, because no research is conducted in a vacuum. Some of the identifiable realities that may influence a researcher's worldview include culture, gender and cultural beliefs (Crossan, 2003). Essentially, the relevance of post-positivist to this study centers on some of the following core assumptions: the scientific idea of cause and effect – where every outcome is determined by a cause, that knowledge is conjectural, i.e., evolving and open to new understanding and interpretation, that research is about testing out new theories, and that data, empirical evidence and rationality help to shape knowledge, and that objectivity is a necessary ingredient for a reliable study (Creswell, 2014). These highlighted points make post-positivism an appropriate epistemological perspective for this mixed method study.

Research Design: Embedded Mixed Design

This study applied a mixed-method design. The study used one instrument (survey questionnaire) that involved both quantitative and qualitative analyses. The instrument appears in Appendix A). The embedded mixed method approach allows the researcher to embed or place "one or more forms of data (quantitative or qualitative or both) within a larger design" (Creswell, 2014, pp. 227-228). As a mixed method approach to research, this study will integrate

quantitative and qualitative data in a convergent manner that allows the researcher to draw scientific conclusion through critical analysis of both data forms. The embedded mixed method was considered appropriate for this study for two important reasons.

First, the mixed design approach gives room for nesting of quantitative data in the qualitative design protocol. Consequently, the researcher was able to answer different questions that require the use of different data types. Secondly, embedded mixed method design provided the researcher with the opportunity to frame the same problem in different ways through triangulation and cross validation (Toshkov, 2016). This view was earlier held by Ragin (1987) who argued that one of the major benefits of combining research approaches is to ensure data triangulation and cross validation. Triangulation refers to the gathering of research data at different times as well as utilizing different sources (Easterby-Smith et al, 2002). For instance, by using both a structured questionnaire and open-ended survey questions, a researcher is able to identify from the feedback areas of discrepancy or contradiction.

For this study, the embedded mixed method design gives priority to qualitative data, (embedding quantitative data) through open ended survey questions designed to probe deeper on the experiences of students with online learning and its hybrid subset. At the same time, pertinent quantitative data measuring levels of satisfaction among students with the model of learning were gathered.

Re-Statement of Research Questions

- RQ1. How do students' experiences with online and hybrid learning lead to satisfaction in education?

- RQ2. In what ways do the level of participation among students in the online/hybrid learning environments determine their satisfaction in learning?

- RQ3. How does the Internet, and other communication technologies like learning

  management systems (LMS), and social media affect the learning experiences and

  satisfaction of students?

- RQ4. Is satisfaction in learning among students of the online/hybrid learning models

  equal to the sum of positive experiences, active participation and good technology?

Sources of Data or Population

The target population for this study comprised university undergraduates and graduate

students who were currently enrolled or have recently completed an online course of study or a

full-length program at one of the accredited institutions of higher education in Nigeria. Exact

statistics on the total population of students who are currently enrolled in online and hybrid

course or program at Nigerian universities is unavailable. However, from other available

statistics gleaned from various education sources suggest that there are an estimated 550,000

students enrolled in various distance learning certificate programs or full undergraduate and

graduate degrees in Nigerian universities (NUC, 2020; NOUN, 2020). To reach this population,

three specific subgroups were invited to participate as this study's overall sample. The first

subgroup comprised students who are currently enrolled in one or more courses or in a full

degree program in hybrid or online learning models at any one of the universities in Nigeria

accredited by the NUC. The second subgroup included graduates who have completed a college

degree or a graduate program at a local distance learning center or university through hybrid or

online education model in Nigeria. Finally, the third subgroup for the target population was

chosen from individuals who have participated in a short certificate program or audited a course

in an online or hybrid education for the period not less than one semester or three months at a

Nigerian university. As stated in the methodology section, the study utilized the snowball or

network sampling for the survey research (see Figure 9).

Figure 9

List of Accredited Online and Hybrid Learning Institutions in Nigeria

S/N	Universities	Online Distance Learning Centers (Odl)
1.	National Open University of Nigeria (NAOUN)	Distance Learning University
2.	University of Ibadan (UI), Ibadan	Distance Learning Center
3.	Obafemi Awolowo University (OAU), Ile-Ife	Center for Distance Learning
4.	University of Lagos (UNILAG), Akoka	Distance Learning Institute
5.	University of Maiduguri (UNIMAID), Maiduguri	Center for Distance Learning
6.	Modibo Adama University of Technology, Yola	Center for Distance Learning
7.	University of Abuja (UNIABUJA), Abuja	Center for Distance Learning and Continuing Education
8.	Ladoke Akintola University of Technology LAUTECH), Ogbomosho	LAUTECH Distance Learning Center
9.	Ahmadu Bello University (ABU), Zaria	Distance Learning Center ABU
10.	Lagos State University (LASU), Lagos	Lagos University Open & Distance Learning and Research Institute
11.	Joseph Ayo Babalola University (JABU), Osun	JABU Center for Distance Learning
12	University of Nigeria Nsukka, (UNN)	UNN Center for Distance and e-Learning

Note. "List of accredited universities that run distance learning programs in Nigeria," by *Jide*, 2018, (https://www.nigerianinfopedia.com/list-accredited-universities-nigeria-offer-distance-learning/). In the public domain.

The study respected and upheld the rights and privacy of the human subjects in this study.

All participants in this survey were adults who were able to make an informed decision regarding

their freedom to participate. In line with the guidelines laid down by Pepperdine University

Institutional Review Board (IRB), all data collected in the process of during the study would be

carefully managed and securely stored to ensure the protection of participants' confidentiality. In

addition, all participants at this survey would have to state their consent before participating (see

Appendix B). For the electronic questionnaire conducted through Qualtrics, each participant is expected to read the introductory section of the questionnaire that clearly stipulates the expectation of the research. By clicking on the continue button after reading the introductory note, this would imply that the individual participant has granted his or her permission. Finally, to further ensure the confidentiality at the stage of analysis, no demographic or personal data that could be used to identify specific individuals would be published. In place of names, numbers or codes would be assigned. Figure 9 shows a list of the accredited universities with distance learning centers for online and hybrid programs from where the target population will be drawn.

Sampling Method and Designed Sample

Network sampling is preferred for this study because it is more appropriately suited for studies where the target population is largely dispersed and unknown or rare as is the case with this research (Lavrakas, 2008). Snowballing as a network sampling method begins with a credible subject, who acts a linchpin through whom the researcher connects with other subjects (Ang, 2014). In snowballing or networking sampling method, the initial subjects could be selected through a probability sampling. Accordingly, for this study, snowballing or networking works by connecting with the target population through a well- known set of individuals, who in turn help to develop a network of subjects who share the common factor of experience and participation in the online and hybrid education at local Nigerian universities. However, it is pertinent to state here that due to the nature of this study design, the use of network sampling or snowballing made it difficult, if not impossible to follow a strictly systematic or random sampling technic. In network sampling, the researcher relies on the goodwill of known and credible participants to create a chain of connections or networks with other persons within a given target population who are willing to participate in the study.

As earlier mentioned, the target population for this study included students and graduates from the twelve universities accredited to run online (distance) and hybrid programs in Nigeria. The target population included students who were currently enrolled in at least a semester course or full degree program at any one of the institutions, those who have participated in online or hybrid programs or courses from any one of eleven local universities in Nigeria in the last two years, and finally those students who might be currently participating in short certificates programs or auditing courses at any of the above listed institutions.

Consequently, this study relied on the use of a non-probability or convenience sample procedure. This occurs in study situations where the respondents or participants are chosen on the basis of their availability and convenience (Creswell, 2014). The research sample of at least 150 respondents was selected using networking or snowballing method from the population of students and graduates of online or hybrid learning at these twelve universities listed in the table below. These institutions are geographically dispersed across the length and breadth of Nigeria.

Assumptions of the Research

Assumptions in research refer to relevant understandings that are taken to be true or at least plausible (PhDStudent, 2019). In this case, certain basic assumptions of honesty and accurate feedback to questionnaires and interviews would be made about the subjects in this study. For instance, due to the limited options for authenticating the veracity of participants' self-reported feedback, one of the assumptions in this study is to presume that the subjects of this research will offer truthful and sincere feedbacks to questions posed.

Another assumption is the perception that findings from this study capture and reflect the perceptions of students who have participated in the distance education, i.e., the online and

hybrid sector of the Nigerian higher education system. In addition, an honest and sincere reporting of the findings is a basic and foundational assumption in this research process.

Data Collection Strategies and Procedures

Part of the process of any study involves the strategy and technique to be employed in order to gather the needed data for analysis. As part of the strategy, the use of survey has been determined as an appropriate data collection instrument for this study. Consequently, the survey questions are designed to capture both the qualitative and quantitative data in a convergent manner, more heavily emphasizing the qualitative data.

Due to the peculiar socio-economic and dispersed nature of the environment in which this research was conducted, it would be risky to rely only on a single data collection procedure. In addition, the survey would be collected under the difficult condition of tertiary school shutdowns created by the current global health pandemic of COVID-19.

Unfortunately, unlike in other more advanced nations with better learning technology system and communication infrastructures, Nigeria still lacks adequate communication and learning technology infrastructures in most of its public (government owned) higher education institutions to ensure smooth and hitch-free transition from face-to-face learning to the online or hybrid model. This scenario meant that most of the schools, in which many of the target population were enrolled, had been on shutdown for the past 3 months due to the COVID-19 pandemic. Therefore, to mitigate these potential challenges, and facilitate prompt and reliable data collection processes, the survey was administered using multiple data collection procedures as the subjects' situations demand within a timeline of 4 to 6 weeks.

The following are the three procedures through which data would be gathered:

- Self-administered survey through Qualtrics (an online survey platform),

- Survey conducted over the regular telephone line or WhatsApp audio call.

- Survey administered through a paper based – hand written feedback.

In general, the anticipated primary procedure for the administration of this research remains the electronic platform known as Qualtrics (an online based survey platform). However, as noted above, some of the research subjects may be hindered from participating in the survey due to one or more problems including non-availability of the internet in towns or villages where subjects reside, lack of the needed funds for internet data subscription on devices or even those lacking access to any digital device. This study recognizes the challenging circumstances and conditions under which the survey would be conducted, hence, it will be clearly stated as part of the limitations of the study.

Triangulation of the qualitative and quantitative data enables stronger confidence in study conclusions. For the qualitative data collection, a combination of questionnaire designed in a Likert scale format to capture quantitative data, and open-ended survey questions designed to capture detailed qualitative explanatory data.

Tools/Instruments Used

As noted earlier in this chapter, the basic research instrument utilized for this study was the survey, which included qualitative open-ended questions with some quantitative close-ended question embedded designed in a Likert 5- scale form. A research instrument is defined as the tool for collecting data for survey research projects in a consistent manner. Similarly, according Check and Schutt (2012), survey research refers to the gathering of information from a sample for the purpose of making generalizations about a given population.

The questionnaire for this study was adapted from an existing survey instrument originally developed by Ezekoka (2015). It appears in a form that connects the questions asked

of respondents to the study's research questions. Following the advice of Marsden and Wright (2010), the survey questionnaire was evaluated and pretested to determine face validity. Evaluators include expert professors and fellow researchers from Pepperdine University, and from other universities in Nigeria where the questionnaire will be administered. This action was to ensure that the instrument contains clearly stated questions using appropriate and comprehensible language. Furthermore, testing the questionnaire helped to ensure clarity regarding the choice of words as well as the arrangement (ordering) of questions to facilitate data collection processes (see Table 1).

Table 1

Operationalization and Measurement of Research Variables

S/N	Item	Operational Definition	Measurement	Question Number
Demographic Information				
1	Gender	Sex of respondents	Two-Point Categorical Scale	Q1
2	Age	Current age of respondents	Five-Point Interval Scale	Q2
3	Educational Qualification	Educational level attained by respondents	Four-Point Interval Scale	Q3
4	Experience	Respondents who have participated or currently participating	Open-Ended Question	Q4
5	Level of study	Respondents level of study or are currently enrolled in the programme	Seven-Point Interval Scale	Q5
6	Duration	The duration of respondents or expected duration of the program	Four-Point Interval Scale	Q6
Satisfaction Of Students With Online/Hybrid Learning Models				
7	Satisfaction of Students	Respondents experiences on how satisfactory online/hybrid learning impacted on them	Likert-Type Five-Point Scale	Q
			Open-Ended Question	Q28-Q32
Online And Hybrid Learning				
8	Student Experiences	Respondent experiences using online/hybrid learning platform	Likert-Type Five Point Scale	Q7-Q15
			Open-Ended Question	Q25-Q26

S/N	Item	Operational Definition	Measurement	Question Number
9	Participation of Students	Respondents participation during the course of using the online/hybrid learning platform	Likert-Type Five Point Scale	Q27-Q34
			Open-Ended Question	Q35-Q36
10	Technological Component Impact	Respondents expression on the impact of technological components affects them using online/hybrid learning platform	Likert-Type Five-Point Scale	Q37-Q44
			Open-Ended Question	Q45-Q46

Model of Specification

To explore the perceived experiences of students on online and hybrid learning at Nigerian universities, an ordinary least square regression model was used to attain the co-efficient of the variables.

The model for the study is functionally stated below:

$SOS' = (EXP, PART, TECH)'$ .... (3.1)

The model is econometrically stated as:

$SAT_{it} = \beta_0 + \beta_1 EXP_i + \beta_2 PART_i + \beta_3 TECH_i + \varepsilon_i$ …………………….... (3.2)

Where:

SAT   = Satisfaction of students

EXP   = Student experiences

PART   = Participation of students

TECH   = Technological component impact

β_0 = intercept

$\beta_1 - \beta_4 > 0$ = Coefficient of EXP, PART and TECH

ε_{it} = Error term

i   = Samples of online/hybrid students of Nigerian Universities

Human Subjects Considerations

The study paid attention to and abided by the Institutional Review Board (IRB) guidelines of Pepperdine University in the design and ultimately in the data gathering and analysis processes. Following the review of the E-protocol for IRB categorization, this study met

the criteria for an exempt research and approval was given (see Appendix C). The study involved the use of a single instrument – survey administered via three processes to 200 participants who fall within the target population. Potential subjects were identified through referrals (network or snowball sampling). This involved the scenario where an individual student contacted his or her friends to participate. The chain process continues until the expected number was reached. Furthermore, the potential participants were contacted via the cell phone, e-mail and through word of mouth (physical recruitment) depending on the context. A follow- up or reminder call was made to those participants who failed to respond to the survey after two weeks of initial dispatch of survey.

The target population included current students and graduates who completed their university degrees and programs within the past two years. Therefore, all measures to mitigate and minimize any risks to them were considered. They include: (a) the use of network or snowball sampling method, which allows for peer-to-peer invitation without any coercion; (b) making it clear to the participants that participation is based on own freedom and volition; (c) ensuring that the participants understand the goal of the study and its significance for the future of good education in Nigeria; and (d) assuring the participants that all personal information (data) that may help to identify them will be stripped from the feedback before data analysis and publication.

The design and expectation of the research ensured that no more than minimal risk would be tolerated. The study instrument was a survey and the only potential risks to subjects involved the breach of confidentiality of their identities. Therefore, to reduce the potential for this risk, the principal investigator ensured that the confidentiality of all respondents would be carefully protected through the deliberate stripping of all identifiers in the course of data collation. This

assurance of confidentiality would equally be conveyed to the subjects as part of the letter of introduction. Beside this, there was no other issue of risks for the participants in the survey. The planned procedure for ensuring the necessary confidentiality was followed included substituting the names of participants with alphanumeric figures in the course of data collation. Also, all specific personal identifiers would be stripped from the data. However, demographic data like age, gender and course of study would be retained to enhance descriptive analysis.

Limitations of Study

The study recognized the sensitivity of the data required as well as the potential limitations associated with the study. Mauch and Birch (1993) defined limitations in research as those factors, which are capable of altering the study to the extent of altering the outcome, yet are beyond the control of the researcher. Therefore, in order to avoid undue bureaucracy and red tape that could potentially slow down or stifle the inquiry process from the administration of the various institutions of participating students, network sampling or snowballing was utilized in connecting with the subjects. The study recognized the potential challenge of compromised objectivity when collecting primary data using self-reporting process as is the case with this study. However, efforts were made to minimize the problem.

Furthermore, there was no doubt that this study would be affected in one way or another by the prevailing conditions created by the on-going COVID-19 global health crisis. In Nigeria, which is the setting for this study, the impact of the pandemic was widespread. Schools, including all the universities where our target population were enrolled are currently under shutdown. However, the study hoped that this challenge would be mitigated with the type of sampling method –network sampling or snowballing method chosen for this study. Nevertheless, this study recognized the reality of the huge challenge presented by the current health pandemic,

and how it might have displaced the target population from their usual places of residence or work. Therefore, in view of this stated circumstance, in addition to the challenges of poverty, loss of jobs and income affecting our students – who constitute the target population, it was expected that the number of potential research subjects would be far lower than earlier anticipated. This reality represents a major limitation of this study. Other limitations would include the timeline of data collection. The estimated timeline for this survey collection was a period of 4 weeks. However, in view of the prevailing conditions, the data collection period could be allowed to extend to a period not exceeding 6 weeks from the date of commencement.

Proposed Data Analysis

Data analysis is a critical part of the research process because without initial planning, data management and analysis are likely to be haphazard. The Northern Illinois University (NIU) Office of Research Compliance, Integrity and Safety defines data analysis as the systematic application of statistical/logical technique for the purpose of objective extraction of desired information. This process involves describing, illustrating, condensing and evaluating collected data (NIU- Responsible Conduct of Research, 2005).

This was an embedded mixed method study. Consequently, both the quantitative and qualitative data were simultaneously collected in a single phase through the use of a survey instrument during a period of four weeks. Data that were collected through the survey administration were analyzed using descriptive statistics such as frequency distribution, mean, and standard deviation. The research model was analyzed using ordinary least square regression and correlation analysis. In order to achieve this, statistical software package Statistics and data (STATA version 14) was utilized due its user-friendly statistical software design. This statistical

software (STATA) facilitated smooth data management and analysis in addition to the ease of producing graphical communication interface.

As an embedded study, the plan of this study was to embed quantitative data style questions in the qualitative open- ended questionnaire. Data collected were analyzed using the two distinct analytic processes of descriptive analysis and thematic analysis (Braun & Clarke, 2006) for in-depth analysis of the emerging themes broken down into the following 6- model steps developed by Braun and Clarke (2006, p. 87). Descriptive analysis (also known as descriptive statistics) was considered as the foundational and most basic form of data analysis, which allowed the researcher to provide summary information contained in the sample data. Braun and Clarke, 2006) "define thematic analysis as the method for identifying, analyzing and reporting patterns (themes) within data" (p. 79). Similarly, in the analysis process, greater weight and emphasis were placed on the qualitative data set while the quantitative data was used to merely support the findings from the open- ended (qualitative) questions that seek to explore depth. Creswell (2014) affirms the freedom of the researcher in mixed method study to determine the level of weighting or emphasis to be applied to the quantitative and qualitative data. Accordingly, he argues that there are no firm lines since it depends on the researcher's design (see Table 2).

Table 2

Measurement Items, Sources, and Reliability Scores of Adapted Scale

S/N	Construct	Number of Items	Source of Scale	Reliability Scores of Adapted Scale
1	Satisfaction of Students with Online/Hybrid Learning Models	10	Ezekoka (2015)	0.792
2	Student Experiences with Online/Hybrid Learning	10	Ezekoka (2015)	0.824
3	Participation of Students in Online/Hybrid Learning Environment	10	Ezekoka (2015)	0.762

S/N	Construct	Number of Items	Source of Scale	Reliability Scores of Adapted Scale
4	Technological Component Impact of Online/Hybrid Experiences of Students	10	Ezekoka (2015)	0.734

Means to Ensure Study Validity

To guarantee the validity of the research instrument, the following steps were taken. The pool of items in the survey was subjected to meticulous scrutiny and evaluation by the supervisors who are experts in the field of psychology and human behavior. The comments and suggestions made by them on the content of the questionnaire were incorporated, thus enriching the quality of the final questionnaire. With respect to reliability of the instrument, Table 2 shows the reliability scores of the different constructs as contained in related previous studies, the number of items and the source of the scale.

Plan for Reporting Findings

In Chapter Four, the data obtained from respondents through questionnaire administration will be analyzed using the statistical tools proposed and interpreted accordingly. Chapter Five will present the summary of findings, contribution to knowledge and recommendations.

Summary

Utilizing an embedded mixed method design, the study developed a methodological protocol that proffered answers to four guiding research questions on the variables of participation (PAR), experience (EXP), technology (TECH) and students' satisfaction (SAT). Using the conceptual framework, the design established the population, data collection instruments and strategies. For the data sampling, network or snowball sampling was used in order to accommodate the unique nature of the study population dispersion and period of data collection (COVID-19 pandemic). Furthermore, in line with the approved protocol by the

Institutional Review Board (IRB), the study paid particular attention to the human subjects

before, during and after the data collection process. The chapter concludes with the proposal for

data analysis and reporting of findings.

Chapter Four: Results

This study, which focused on the perceived effects of online and hybrid learning on the experiences of students at Nigerian universities, sought to address the following four research questions (RQs), each of which identifies a construct in boldface that is discussed in the data that this chapter presents:

- RQ1. How do students' experiences (EXP) with online and hybrid learning lead to satisfaction in education?

- RQ2. In what ways do the level of participation (PAR) among students in the online/hybrid learning environments determine their satisfaction in learning?

- RQ3. How does the Internet, and other communication technologies (TECH) like learning management systems (LMS), and social media affect the learning experiences and satisfaction of students?

- RQ4. Is satisfaction (SAT) in learning among students of the online/hybrid learning models equal to the sum of positive experiences (EXP), active participation (PAR) and good technology (TECH)?

The study explored these four RQs to build understanding of student perceptions of the environment in which online and hybrid learning occur in Nigerian universities. The RQs addressed the impact experience, participation, technology and satisfaction on the perceived learning experiences of Nigerian students enrolled in online and hybrid learning.

The study underscored the evolving social and technological contexts of our world, but more specifically, the context of Nigeria higher education. The findings will offer clarity and support to on-going conversations about online learning as an efficient and reliable alternative model of learning at universities and other educational institutions in Nigeria.

A few key factors motivated this study. Among them was the need to correct the erroneous perception held by some traditional Nigerian educationists, which suggests that valuable and high-quality knowledge cannot be achieved through the online or hybrid learning models, and that good, and quality education is only achievable in the traditional face-to-face learning environment. Other reasons include the academic desire to demonstrate that online and hybrid learning is beneficial to the students, their institutions, and the country at large. As stated earlier, online and hybrid learning provide much desired extra learning space and opportunity for thousands of college age students who would otherwise not be accommodated in the limited in the limited spaces at the local traditional universities and other institutions of higher learning in Nigeria.

Description of Questionnaire/Survey

The initial pretest design employed two questionnaire designs to address the four research questions: a five-point Likert scale type questionnaire, and a dichotomous Yes or No styled survey instrument design. Both survey options were chosen for their appropriateness to this type of online study. Stiles (2015) states that large data sets collected about online surveys show that the combination of the Likert scale, and the dichotomous Yes or No styled questionnaire produced the most actionable data. The five-point Likert scale survey analyzed each question using - strongly agree (1), agree (2), not sure (3), disagree (4), and strongly disagree (5).

The choice of the questionnaire, which was designed and administered on Qualtrics application, comprised 46 items divided into four sections corresponding to the four research questions, namely experience, participation, technology and satisfaction. However, following the review by the IRB, the questionnaire was administered to a select group of college students who met the study criterion as a trial test prior to conducting the main survey. The goal of the trial

test, among other things, was to determine the participants' perception of the study. The strong

feedback from the trial group showed that the questionnaire contained repetitions of some

questions, which made the survey unnecessarily elaborate. In addition, the test participants

reported that the 46 items in the questionnaire took a long time to complete, and was tiring to the

participants. Consequently, upon further review, the 43 items in the questionnaire were reduced

to 32 to ensure a smoother and morel timely survey participation without altering the original

intention and design of the questionnaire.

Approximately 100 respondents were anticipated in casting a wide net in 12 universities

located in different parts of the 36 states that make up Nigeria. The target population for this

study comprised students and graduates of Nigerian universities and other higher education

institutions who participated in online and hybrid learning programs. The recruitment process

involved a non-probability sampling technique called snowball or chain sampling. This sampling

technique allows a researcher to recruit targeted participants through the referrals of the primary

subject. In this case, students and graduates who have enrolled in either online or hybrid learning

programs or courses at any one of the twelve Nigerian universities selected for the study are

instructed to invite their friends or fellow students who meet the criteria for participation.

Following the recruiting, a sample of 211 respondents participated in the survey, which

was 110 above the anticipated number of participants. The study, which was completely online

(Qualtrics Survey application) was conducted within a period of 4 weeks. Each of the questions

either helped to describe the sample or to address the four research questions directly.

Demographics

As precursor to sharing results on the questions of experience, participation, technology,

and satisfaction, this section presents a statistical summary of the administered survey feedback

from the respondents, from which our recommendation and conclusion are drawn (see Table 3;

Table 4).

Table 3

Gender Distribution of Participants

Gender	No.	Percentage
Males	106	50.24%
Females	105	49.76%
Total	211	100%

Table 3 shows that 106 of the survey's respondents were males, and 105 of the

respondents are females, representing 50.24% and 49.76% of the total respondents, respectively.

Table 4

Age Distribution of Participants

Age	No.	Percentage
20yrs and below	56	26.79%
21 - 30yrs	109	52.15%
31 - 40yrs	37	17.70%
41 - 50yrs	4	1.91%
51yrs and above	3	1.44%
Total	209	100%

Table 4 shows that 56 of the respondents' ages were 20 years and below, or 26.79% of

participants; 109 of the respondents were between the ages of 21-30 years, or 52.15% of

participants; 37 of the respondents were between the ages of 31- 40 years, representing 17.70%

of the respondents; four of the respondents were between the ages of 41- 50 years, representing

1.9% of the respondents; and three respondents were 51 years or older, representing 1.44% of the

total survey feedback.

Table 5

Educational Level of Participants

Educational Level	No.	Percentage
NCE/DIPLOMA/OND or Equivalent	27	12.98%
HND/BSc or Equivalent	129	62.02%
Postgraduate (graduate)	52	25.00%
Total	208	100%

As shown in Table 5, 27, or 12.98% of the respondents' educational level fell within the range of National Certificate of Education (NCE), DIPLOMA, Ordinary National Diploma (OND) or its equivalent. 129 respondents reported obtaining a Higher National Diploma (HND), Bachelor of Science (B.Sc.) or equivalent degree, representing 62.02% of the total respondents. 52 respondents reported postgraduate education, representing 25% of the respondents.

Table 6

Participated or Currently Participating Participants

Participated or Currently Participating in a distance (online/hybrid) learning course or program at a university in Nigeria	No.	Percentage
Yes	182	87.50%
No	26	12.50%
Total	208	100%

As shown in Table 6, 182 respondents, or 87.50% of respondents, have either participated or were currently participating in an online or hybrid program at the time of the survey, while 26 respondents or 12.50% of respondents have never enrolled in an online or hybrid program.

Table 7

Level of Study Distribution of Participants

Level of Study Completed or Enrolled in	No.	Percentage
Certificate	9	4.31%
OND	11	5.26%
BSc	135	64.59%
MSc	17	8.13%
MBA	16	7.66%
Mphil	7	3.35%
PhD	14	6.70%
Total	209	100%

As shown in Table 7, nine of the respondents' highest level of study were certificate programs, representing 4.31% of participants, while 11 respondents' highest level of study was Ordinary National Diploma (OND), representing 5.26% of the total participants. Furthermore, 135 respondents' highest level of study was a BSc, representing 64.59% of the total participants. 17 of the respondents had a Master's degree (either an MA or an MSc), representing 8.13%, while 16 respondents' highest level of study was Master of Business Administration (MBA), representing 7.66% of the participants. Finally, seven respondents' highest level of study was a Master of Philosophy (Mphil), representing 3.35% of the participants, and 14 respondents have attained doctorate level education (PhD), representing 6.70% of the survey participants.

Table 8

Duration or Expected Duration Distribution of Participants

Duration or Expected Duration of Current or Completed Course or Program	No	Percentage
Less than a year	22	10.58%
1 – 4 years	156	75.00%
5 – 9 years	30	14.42%
More than 10 years	0	0.00%
Total	208	100%

As Table 8 shows, the cumulative post-secondary education duration, or expected duration, was reported by each participant. 22 respondents had spent or were expecting to spend less than one year in post-secondary programs, representing 10.58% of the participants. 156 respondents' cumulative post-secondary education duration or expected duration was between 1-4 years, representing 75% of the respondents. Similarly, 30 respondents report that the duration or expected duration of their courses or programs ranged between 5-9 years, which is 14.42%. Finally, there were no respondents who report a duration or expected duration of more than 10 years.

Data Analysis

This section discusses the analysis of the retrieved questionnaire and the test of hypotheses. Table 9 shows the Cronbach Alpha test for reliability of the study instrument – survey. The minimum acceptable value for Cronbach's alpha is 0.70. Below this value, the internal consistency of the common range is considered low. On the other end, the maximum expected value is 0.90; any figure above this value is perceived as redundant or duplication. Alpha values between 0.80 and 0.90 usually indicate more reliable results. The Cronbach Alpha test results for our survey show a value of 0.80, which suggests that the instrument for this study is reliable, as presented in Table 9.

Table 9

Cronbach Alpha Reliability

Item	Obs	Sign	Item-Test Correlation	Item-Rest Correlation	Average Interitem Covariance	Alpha
sat	206	+	0.8524	0.6490	.0434424	0.7321
exp	206	+	0.8024	0.5989	.0523634	0.7457
par	205	+	0.7662	0.6299	.061632	0.7609
tech	203	+	0.7646	0.5772	.0569474	0.7724
					Test Scale .0536064	0.8036

Descriptive Statistics

Table 10

Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
SAT	206	1.728592	.3877961	1	4.33
EXP	206	1.2	.3260525	.5	2.67
PAR	205	.7546341	.2548481	.2	1.83
TECH	203	1.430197	.3196888	.8	3.17

Table 10 presents the descriptive statistics for the four constructs of satisfaction (SAT), experience (EXP), participation (PAR), and technologies (TECH). On average, student satisfaction was 1.73 with a standard deviation of 0.39, a minimum value of 1, and a maximum value of 4.33, implying that online and hybrid learning programs in Nigeria are academically engaging and rigorous. Instructional approaches effectively motivate students to interact and network amongst peers and make them competitive in the labor market. Thus, students are satisfied based on their experiences, participation, and the technological impact of online and hybrid learning processes in Nigerian universities. Furthermore, we find that, on average, student experience was 1.2 with a standard deviation of 0.33, a minimum value of 0.5, and a maximum value of 2.67. This shows that students' experiences with online and hybrid learning in Nigerian universities positively impacted students. Since these study options allow students to study at their own pace and from anywhere, students are more likely to be able to balance school and work responsibilities, thus reducing withdrawal rates and empowering student performance and learning.

Student participation on average was 0.75 with a standard deviation of 0.25 with a minimum value of 0.2 and a maximum value of 1.83. This indicates that students' participation in online and hybrid learning in Nigerian universities increases the students' access to learning and education opportunities. The learning models enable students to receive timely feedback from instructors and coursemates.

Students participated more in distance learning models such as correspondence learning, group discussions or activities, and asynchronous sessions, as opposed to in-person courses. Students engaged in distance learning with telephones, emails, and downloaded documents throughout the program. Finally, technology, on average, was 1.43 with a standard deviation of 0.32. The minimum and maximum values were 0.8 and 3.17, respectively. This indicates that despite the impact of some negative factors, such as the high cost of internet data, poor network facilities, poor electricity, etc., students in Nigerian universities were not deterred from pursuing online-based learning. The use of various web-based technology models, such as synchronous and asynchronous sessions, is becoming common in most Nigerian universities that offer online and hybrid learning.

Test for Data Normality Residua

When testing for data normality residua, the sample distribution must be normal. The distribution is abnormal if the test is significant at 5% or less. This study adopted the Shapiro-Wilk test for normality test procedure for $n =10$ to $n =2000$, as suggested by Razali and Wah (2011). Consequently, the study conducted the test for normality of residua as shown in the table below:

From the results presented above, it is observed that only the dependent variable of student satisfaction ($Prob > z = 0.00000$) violates the normality assumption. However, the p-

values of the ordinary least square regression technique are relied upon for interpretation since the variables are not normally distributed. Table 11 shows that all other variables in this study also follow a non-normal distribution. This conclusion is obtained from the probability z statistics presented in the table above. This study justifies this interpretation following the study of Bera and Jarque (1982).

Table 11

Shapiro Wilk Test for Data Normality

Variable	Obs	W	V	Z	Prob>z
SAT	206	0.83182	25.744	7.485	0.00000
EXP	206	0.81025	29.046	7.763	0.00000
PAR	205	0.95701	6.552	4.331	0.00001
TECH	203	0.87939	18.228	6.684	0.00000

Correlation Analysis

With non-normal data shown by the test result, alternatives to the Pearson approach might be justified. The robustness of Spearman's versus Pearson's test has received relatively little empirical scrutiny. In one of the few studies, Fowler (1987) found that Spearman's r was more powerful than Pearson's r across a range of non-normal bivariate distributions. The power benefit of Spearman's r may be the result of rank-ordering, causing outliers to contract toward the center of the distribution (Gauthier, 2001). Given that the data set followed a non-normal distribution, we employ the Spearman rank correlation technique to conduct the possible association between the variables of interest shown in the Table 12.

Table 12

Shapiro Wilk Test for Data Normality 2

	SAT	EXP	PAR	TECH
SAT	1.0000 203			
EXP	0.4071* 203 0.0000	1.0000 203		
PAR	0.3493* 203 0.0000	0.2594* 203 0.0000	1.0000 203	
TECH	0.3561*	tech	0.3561*	TECH

Specifically, the analysis from the Spearman rank correlation showed that student experience (0.4071), student participation (0.3493), and technology (0.3561) each correlate highly with student satisfaction. However, the associations between these three variables are weak; hence there is no reason to suspect the presence of multicollinearity in the estimated models.

Regression Analysis

The study included pool least square regression analysis (also called ordinary regression) and proceeds to check if the basic assumption of the pool least square regression has been violated. The results obtained from the pool least square regression are as shown in Table 13.

Multicollinearity

Multicollinearity is viewed as an interdependency condition. It is defined by a lack of independence or the presence of interdependence, signified by high intercorrelations within a set of variables. Under this view it can exist quite apart from the nature, or even the existence of a dependency relationship between the independent and a dependent variable. In this study, like in most other related studies, the researcher employs the variance inflation factor (VIF) technique to diagnose the presence or absence of multicollinearity. Variance inflation factors (VIF) measure

how much the variance of the estimated regression coefficients is inflated compared to when the predictor variables are not linearly related. A cut-off value of 0.44 is given for regarding a VIF as high. Specifically, the researcher follows Gujarati (2004), which allows VIF to be less than five. However, the results show that VIF is less than five (5) for all independent variables of interest.

Table 13

Pool Regression Estimation Result

SAT	COEF.	STD. ERR.	T	P>|T|	[95% CONF. INTERVAL]
EXP	.4128361	.0767545	5.38	0.000	.2614796 .5641927
PAR	.4346738	.0966043	4.50	0.000	.2441742 .6251733
TECH	.2621015	.0741249	3.54	0.001	.1159304 .4082725
_CONS	.5242778	.0985183	5.32	0.000	.330004 .7185516

Note. Number of Observations = 203 *F*-Stats (3,199*)* = 60.11   *p-Value* = 0.0000
R-Square = 0.4754

Test for Homoscedasticity

When data come from a normally distributed population, rejection of the Breusch-Pagan test implies non-homogeneity of covariance. However, if the population distribution is not known, then rejection of the Breusch-Pagan test can be due to either non-normality or non-homogeneity of covariances. In general, one does not know whether the data are normally distributed. First, the researcher applies the Breusch-Pagan test. If the test is not rejected, then there is no ground to suspect non-normality or heterogeneity of covariances. On the other hand, if the Breusch-Pagan test is rejected, then a nonparametric test of homoscedasticity is necessary.

If the nonparametric test is not rejected, then it may conclude that the data is non-normal; and if the nonparametric test is rejected, then non-homogeneity of covariances will be concluded.

The result obtained from the regression results reveals a probability value of (p-value: 0.0000) obtained from the Breusch-Pagan test. This result indicates that the assumption of homoscedasticity has been violated due to very low p-values, which are statistically significant at the 1% level. However, to correct for this violation, the researcher employs the robust standard error regression, as recommended by Greene (2003).

Robust Standard Error Estimator

Ordinary least squares estimation has been shown to be weak because a single and typical observation can cause this estimator to break down. Furthermore, the least square estimator requires a moment condition on the error distribution to be consistent. However, robust regression estimators have been introduced to overcome these problems, and they have become a standard tool in regression analysis. In this situation, normality of the error terms is in fact, not needed, nor does any moment need to exist when applying robust estimators. The standard approach to statistical inference based on robust regression methods is to derive the limiting distribution of the robust estimator and to compute the standard errors of the estimated regression coefficients. The robust standard errors remain valid when the error terms are not independent and identically distributed (I.I.D) but suffer from heteroscedasticity or autocorrelation.

A robust standard error consistently estimates the true standard error even in the face of non I.I.D. error terms. The most popular robust standard errors in econometrics are the White or Eicker-White standard errors (attributed to Eicker, 1967; White, 1980), which protect against heteroscedasticity and the Newey-West standard errors (Newey & West, 1987), which are heteroscedasticity and autocorrelation consistent (HAC) estimates of the standard error. Hence, an important property of robust standard errors is that the form of the heteroscedasticity and/or autocorrelation does not need to be specified. Therefore, due to the presence of

heteroscedasticity obtained from the pool least square regression estimator, the researcher

employs the Eicker-White standard errors that are relied upon for hypotheses testing. The results

appear in Table 14.

Table 14

Robust Panel Least Square Regression

SAT	COEF.	STD. ERR.	T	P>|T|	[95% CONF. INTERVAL]	
EXP	.3860064	.0669017	5.77	0.000	.2540791	.5179337
PAR	.2776341	.0842035	3.30	0.001	.1115885	.4436797
TECH	.2391747	.0646097	3.70	0.000	.1117673	.3665822
_CONS	.6935363	.0858718	8.08	0.000	.5242009	.8628718

Table 14 shows the result obtained from a robust standard error estimator for the student

satisfaction model. Specifically, the researcher provides interpretation for the robust standard

error estimator as recommended by Gujarati (2004). The model's goodness of fit, as captured by

the Fisher statistics (54.83) and the corresponding probability value (0.0000), shows a 1%

statistically significant level, suggesting that the entire model is fit and can be employed for

interpretation and policy recommendation. Moreover, an R^2 value of 0.4754 indicates that about

48% of the variation in the dependent variable is being explained by all independent variables in

the model. This implies that about 52% of the variation in the dependent variable is left

unexplained but has been captured by the error term.

Regression Model

The expectation that student satisfaction (SAT) can be predicted by the quality of

experiences (EXP), participation (PAR), and technology quality (TECH) can be summarized in

the following model, with beta values representing normalized variable coefficients.

$$SAT_i = \beta_0 + \beta_1 EXP_i + \beta_2 PAR_i + \beta_3 TECH_i + \varepsilon_i$$

This model represents a reasonable interpretation that satisfaction is at least partially predictable from the EXP, PAR, and EXP variables, and the data, does in fact, suggests a robust regression model that accounts for most of the variation in student satisfaction.

EXP Value in the Regression

From Table 14, student experience (EXP) is significantly and positively related to the satisfaction of students (SAT), with a *p*-value of < 0.001 and a coefficient value of 0.39. This indicates that students involved with online/hybrid learning programs in Nigerian universities were satisfied with the process and procedures of online/hybrid learning in their various schools. These modalities offer a learning-centered approach that enables students to develop independence and autonomy in their study habits. Participants reported adequate provisions of learning resources, including hardware and software, to facilitate their learning.

PAR Value in the Regression

Participation of students (PAR) shows a significant and positive relationship with satisfaction of students (SAT) with a *p*-value of 0.001 and co-efficient value of 0.28. This suggests that students were able to work and learn independently, thereby benefiting from the learning model used by the school. Technological component impact reveals a significant and positive *p*-value of 0.000 and a coefficient value of 0.24. This implies that the majority of online/hybrid learning universities in Nigeria welcome new information and communication technologies to the online learning space, such as wireless, broadband internet, amongst other technologies.

Technology Value in the Regression

The impact of technology has brought tremendous innovation and transformation. With the introduction of new technologies into the Nigerian education system, students have the option to enroll in courses and actively participate in academic programs from different parts of the country without visiting the institution. The value β_0 at 0.69, which is approximately 1.0, shows that the variables measured have an immense impact on the satisfaction of students in online and hybrid learning programs from Nigerian universities.

Final Regression Model for Predicting Student Satisfaction

These values suggest a final prediction model of

$$SAT_i = 0.69 + 0.39*EXP_i + 0.28*PAR_i + 0.24*TECH_i + \varepsilon_i$$

This model is a key finding of the study. It suggests a slightly heavier predictive weight on experience, with participation and technology each also heavily contributing to student satisfaction.

This model is consistent with essential areas that the literature review summarized., and with the conclusion that in online and hybrid learning models, students' experience (EXP), participation of students (PAR), and technological component impact (TECH) were significantly and positively related to the satisfaction of students (SAT). As earlier stated in the literature review, learning or education, in a generalized sense, is geared towards knowledge gain, the socialization of participants, and in particular, for the acquisition of specific skills and expertise in any field of human endeavor.

Student Experience and Satisfaction of Students

From the result of the analysis, student experience (EXP) is positively and significantly correlated with the satisfaction of students (SAT), evidencing that during the period of

investigation, students of various universities that practiced online/hybrid learning were satisfied with their experience. This result is consistent with the findings of Koohang and Durante (2003), Poon (2013), and Ezekoka (2015). These findings imply that students have a significantly higher positive perception (or experience) of online and hybrid learning activities during their academic programs.

Participation of Students and Satisfaction of Students

The result reveals that participation of students (PAR) is significantly and positively related to the satisfaction of students (SAT). This implies that the learning models influenced students' participation and commitment in online and hybrid learning classes in Nigerian universities. Proof of active participation was shown in the timely feedback from participant students during the study under review. This result is consistent with the findings derived from Owston et al. (2008); Poon (2013), and Ezekoka (2013), whose results show that students' satisfaction is based on the learning models used by the institution.

Technological Component Impact and Satisfaction of Students

The result shows that technological component impact (TECH) is significantly and positively related to the satisfaction of students (SAT). In other words, the technological components used by the various Nigerian universities practicing online and hybrid learning tremendously impacted students' satisfaction. Students reported that their perception of technology-based (online and hybrid) learning was less stressful, more flexible, and provided a successful gateway to complete their programs. This study corroborates the findings of Kuang-Yu (2011), who found that technology has a significantly positive relationship with the satisfaction of students. However, some of the findings from this study do not align with those of other researchers, including Ojeyemi (2021), Chiaha et al. (2013), and Eze et al. (2018). Thus,

the technological components of learning in many universities have been perceived as not much more than a means of improving the quality and accessibility of knowledge (Zameni & Kardan, 2011).

Summary

Data description and reporting, as well as data analysis constitute the core discussion in this chapter. The chapter begins with a descriptive analysis of the four research questions from which 46 questionnaire/survey was created with corresponding attention placed on the constructs: participation, experience, technology and satisfaction. Data description included demographic information of the participants. Following the descriptive analysis, collected data was reported to ensure compliance with approved study design and analysis protocol.

Data analysis consisted of series of statistical description and analysis of collected data while subjecting the data to reliability tests such as test for data normality residua, correlation analysis, regression analysis and, the test for homoscedasticity. Findings showed a high level of positive correlation between the variables of participation, experience and use of improved technology to students' satisfaction in online and hybrid learning.

Chapter Five: Discussion

Introduction

This chapter gives the summary of the study carried out on exploring the perceived effects of online and hybrid learning on the experiences of students in Nigerian universities. It also presents the implications of the results on the study, as well as the conclusion and some important recommendations for future study and contribution to existing knowledge on the subject matter.

Summary of Findings

Below is the summary of the findings for this study:

i. Students' experience (EXP) was significantly and positively related to the satisfaction of students (SAT).

ii. Participation of students (PAR) was significantly and positively related to the satisfaction of students (SAT).

iii. Technological component impact (TECH) was significantly and positively related to the satisfaction of students (SAT).

Implications of the Findings of the Study

The result of the study has implications not just on the online and hybrid learning environment, but on the overall education system in Nigeria. In this segment, some of the implications of the study will be discussed and analyzed. One important element that this study reveals about education in Nigeria, is the fact that the students' satisfaction is often underplayed or equated to academic success. Thus, most educational institutions, including many universities judge the quality of their educational programs and services only on the metric of their students' academic performances. This is a wrong and an inadequate approach to determining the quality

of any educational program. A good quality learning program must encompass important learning variables like students' experiences (EXP), participation (PAR), technology where necessary in order to determine the level of satisfaction of the participants or learners. One direct implication of the findings of this study is that it can help education planners and school leaders to have a holistic design of school programs by paying attention to the learning experience.

Transformation has remained sacrosanct to the goal of education. Education is critical not just to the socialization of entrant of the society or a social group, it is also essential to the development of human potentials and the furtherance of socioeconomic and sociocultural developments of human community. As explained by Malhotra and Goyal (2020), education is a form of learning in which the knowledge, skills, and habits of a group of people are transferred from one generation to the next through teaching, training, or research and at its center is the continuity of such human community and further development of the society. The value and goal of education has not change since humanity began living in groups. What has change has been the mode and means of delivering education and socializing the entrant of the human community. Beginning from 14th century when printable material ushered new era in the educational process, pedagogical process became domesticated. Consistent efforts have been directed towards making education ubiquitous. In the 21st century, that effort is beginning to yield the anticipated result.

With the advent of World Wide Web and cyber-sphere, the mode and means of delivering the content and materials of education have changed. Though books and printable materials remain relevant to education and all socialization processes, Internet has astronomically increased the accessibility of education. It has not only broken the barriers of boundaries, language, and learning platforms, Internet has narrowed the unnecessary in teacher-

student engagement. Noor ul Amin (2010) maintained, Internet has made it possible for students to now have an easy access to resource persons, mentors, experts, researchers, professionals, and peers all over the world at the click of the mouse. Online and hybrid educational platform pivoted on Internet or World Wide Web has provided the human community with full spectrum of possibilities never imagined. It has made the goal of education easily attainable and has increased the accessibility of education. Also, barriers of in-class arrangements of learning have been broken down by online and hybrid learning platform; age is no longer a problem to learning as one can be in an online class with people different age bracket and generational gap. The limitation imposed by time is gradually being eliminated. Importantly, education is becoming learner center. Effort is focused on reaching the students where and when it will be convenient for the learner.

The findings of this research has shown that online and hybrid learning platforms in Nigeria have accelerated the accessibility of higher education and in that way enhanced the attainment of the goal of education in Nigeria. According to the National Policy on Education, the goals of tertiary education in Nigeria shall be to provide accessible and affordable quality learning opportunities in formal and informal education and to promote national and international understanding and interaction. The correlation analysis of the research showed that the students experience, students' participation and technology each correlate highly with student satisfaction. This may suggest that the students in Nigerian higher institutions who participated in the survey were satisfied with the online and hybrid educational platform as their experience was enhanced just as their participation and the integration of technology in their learning process. This invariably suggests that the goal of education was attained, as the online and

hybrid-learning programs were academically engaging and rigorous. Again, the instructional method encouraged students to interact and network amongst their peers across the nation.

The research findings supported the goal and vision of higher education in Nigeria, which is to advance Nigeria's economic growth and global competitiveness through the provision of accessible, relevant, and affordable high-quality education. As buttressed by the findings of the research, online and hybrid educational platforms in Nigeria are academically engaging, rigorous and affordable. By making education in Nigeria accessible and affordable, the online and hybrid educational platform has facilitated in the attainment of another very important goal of education in Nigeria, which is to provide learning programs that prepare students with knowledge and skills for self-reliance and the world of work. This educational platform has been efficient in reducing skill shortages through the production of skilled work force relevant to the needs of the labor market in Nigeria.

The findings of the research confirms the work of Ajadi et al. (2008) who maintained that the continuing growth in the population of Nigeria, the attendant escalating demand for education at all levels, the challenges of sourcing education through the traditional means of physical classroom mode, and the compelling need to provide education for all irrespective of environmental, social or cultural circumstances have made online and hybrid educational platform an appropriate means of providing cost effective and easily accessible educational program to respond to the huge unmet demand for education in Nigeria. The government of Nigeria has also established National Open University to further streamline and facilitate in providing highly accessible, qualitative and cost-effective education that transcends the challenge common with physical classroom mode of education at the tertiary institution.

Situated Learning in the Context of Online and Hybrid Learning in Nigeria Higher Education System: Implications of Findings

As noted in the literature review, situated learning theory describes the experiential process where members of the learning community acquire new knowledge through active participation in the learning process, which allows them to negotiate meaning with other more knowledgeable participants. Situated learning makes no distinction between knowledge and action, as knowing and doing are not separated. Learning is situated and embedded in the particular cultural space lived by the learner. With situated learning, the context and experiential knowledge of the learner is integral part of the learning process. The underline principle of situated learning process is that learning is grounded in the actions of everyday situations of the learner, knowledge is acquired contextually, and the social environments of the learner. The strong benefit of online and hybrid-learning platform is that it happens at the context of the learner. The learners do not have to change their physical environment or separated from their world to participate in an online and hybrid learning program.

In line with the research, students experience is significantly and positively related to the satisfaction of the student with a *p*-value of 0.000 and a coefficient of 0.39. Part of the satisfaction is because the online and hybrid programs give the students the needed independence and autonomy in their study habits. The online and hybrid programs happen at the context of the learners; they allow the learners the flexibility and latitude to infuse their experience and context into the learning process. The delivering of the learning content and mode put into consideration the context of the learner. The learners need little or no face-to-face interaction with space of the knowledgeable participants in the learning process. The sociocultural context inhabited by the

learner forms the integral part of the learning process. The learners are not the receptacle of the information, skills and knowledge of the knowledgeable participant.

This has huge implications for online and hybrid learning process in particular and in higher education in Nigeria in general. The situated learning necessarily demands that the context of the learner has to be conducive to learning environment otherwise the learning process will be ineffective. This requires investment in infrastructures, social amenities, and Internet connectivity. If adequate effort is made towards the provision of these facilities, the situated learning process of the learner will be hampered. Unfortunately, adequate infrastructural provision and particularly, Internet connectivity remains a challenge in Nigeria. Students on the online and hybrid learning platform constantly bemoan the high cost of Internet connectivity and how that affects their active participation and full engagement in the online and hybrid learning process.

The situated learning theory in online and hybrid learning platform will require the reorientation of the teachers or lecturers to understand that they are knowledgeable participants of the community. This may mean jettisoning the traditional model of the "teacher-knows-it-all" of learning, where the teachers see themselves as the bastions of knowledge. The teachers are participants even with their knowledge given that the learners, through their situated context make meaningful contribution to the learning curve. The knowledgeable participant does not dwarf the learner. The challenge is that this reorientation may not be so easy. Where the reorientation has taken place, the learner and the teacher (the knowledgeable participant), have had wonderful interactions. The students become in charge of the learning process and the apprehension and appreciation of the learning material is much deeper. With adoption of the situated learning theory, learning ceases to be a regurgitation of learning material. The learner's

situation permeates the learning process, making it meaningful to the learner and the knowledgeable participant.

Given the nature of online and hybrid learning platform, situated learning empowers the learner to be actively involved in the learning process. The learners understand that they collaboratively navigate the learning process with the teacher. The teachers will cease to see the leaners and the learning process as nominal activity with little involvement of the students. This theory will eventually preclude the much abuses associated with face-to-face learning process noticeable in the higher institutions in Nigeria. The learners will understand that their participation is what endows them with the knowledge of the learning material. And as the context of every learner is different, the participation and engagement with the learning material will be different. What will be evaluated will be how the learner actively engaged with the learning material according to his or her context. This will surely empower the learner to appropriate the learning process.

Situated learning gives greater autonomy and independence to the learner in a way that the learner becomes in charge of the learning process. As can be inferred from the findings of the research, the participation of the students showed a significant and positive relationship with the satisfaction of the students with a p-value of 0.001 and co-efficient value of 0.28. The findings suggest that the participation of the students, which in most case was from the individual context of the learners, enhanced the satisfaction of the learners. The situated learning theory accentuates autonomy and independent participation of the students in the learning process. Much as the student may have the same, learning material, the online and hybrid learning platform makes autonomy and independence in the learning process inevitable. Such autonomy rejuvenates the learning process as students are eager to learn and are not pressured into thinking in box; the

excitement is what makes the participation of the student significantly positive. As maintained by Stein (1998), situated learning essentially enhances the autonomy of the students and allows them to create meaning from the real activities of their daily living.

The major challenge with situated learning in relation to online and hybrid learning is how to inculcate the learning material that the practical artifact is involved in the learning process if such practical artifact is beyond what the learners in their situated context can generate. Therefore, for a highly practical knowledge, that requires active engagement of the learning material beyond what the learner's environment can support, the acquisition of such knowledge will be a challenge. However, hybrid-learning strategy infused into online learning might be employed here. If hybrid is employed, the learner will be encouraged to visit the university or some designated centers on some days where provision for such practical aspect of the learning will be provided.

Connectivism as a Learning Tool for Enhancing Online and Hybrid Learning in Nigeria

As explored in the review of literature, connectivism is a learning theory suitable for Internet age. Cyber sphere is a world of connections and networking. Online and hybrid learning platform will be impracticable without Internet, networking, and connections. Connectivism is essentially a learning theory that is pivoted on the Internet, the connections and networking it offers. Connectivism is a learning theory that acknowledges that in a cyber world, knowledge is consumed and distributed across a network of connections in a way that learning and acquisition of knowledge will necessarily demand navigating through networks and connections. Online and hybrid learning platform depends on the cyber world for success. As argued in the literature review, connectivism describes how Internet technologies are shaping, informing, and creating

new opportunities for learners to connect and share information through email, wikis, online discussion forum, social networks, YouTube, and different management systems.

We are living in the world of connections made possible by World Wide Web. Nigeria is not isolated or insulated from that world. Connectivism, much as it emphasizes that knowledge is the set of connection formed by actions and experiences based on a network of social connection, is not peculiar or exclusive to any part of the world. Some part of the world may be advanced in infusing the cyber world into learning environment. Yet, learning process has been greatly enhanced in Nigeria through social network supported by Internet and social media. As revealed by the findings of the research, connections and networking as learning tool is not strange in Nigerian society. The survey of the research was made possible through Internet connections and networking. The critical concern is how to leverage on the Internet connections and networking in the Nigerian educational sector especially as it relates to online and hybrid learning.

However, connectivism, which relies on efficient and effective cyber world or the World Wide Web and infrastructures for proper functioning seems to be a mirage in Nigeria. As reflected in the review of literature, the lack of these facilities may constitute serious challenge effective functionality of connectivism as a learning theory. Ajadi et al. (2008) emphasized this as they argued that E-learning platform is still fraught with lots of challenges because of the poor state of infrastructures and amenities on which depends connectivity and networking. They insisted that in Nigeria, the number of students per computer on which Internet, online network, and connectivism depends is limited and where the computers are available, are not interactive. The requite software and peripheral interfacing components to ensure that the computers are interactive and connectivism is enhanced, are not widely available. "Most students in Nigeria go to the Cyber Café but because there are people of diverse intension on the net at the same time,

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and the bandwidth problem, a multimedia interactive cannot be done" (Ajadi et al., 2008, p. 3).

So higher institutions with proper, efficient, and functioning facilities to enhance online education on which connectivism depends is still a challenge. Students improvise. The cost of doing so and even the availability of the required bandwidth and Internet connectivity militate against the effort and desire of the students. Nodal connections and networking remain a challenge that educational institutions are making effort to navigate. Going by the analysis of Agunloye (2021), it does not look bright for online system of education in Nigeria due to lack of uninterrupted supply of electricity, fast internet connection, affordable access to internet, availability of computers or laptops for majority of students and high cost of android phones; the cost of accessing the Internet is high and it is difficult to see a poor parent give his or her child the money to buy data to sustain an hour of uninterrupted online class.

Even in the midst of this paucity in facilities and lack of peripheral interfacing components that will enhance online and hybrid learning platform, connectivism remains relevant. Connectivism is needed to navigate the sparseness. Connectivism builds on nodal connections and networking not abundance of facilities, software, and peripheral interfacing components that will ensure the effective functioning of online and hybrid learning platform. Given that connectivism emphasizes on the learning community as a cluster of networks, systems, interaction, associations, and sharing of knowledge, insufficiency will make this sharing, networks, and interactions inevitable. The importance of connectivism is in its philosophy of sharing information and knowledge through nodal connections. Therefore, connectivism becomes even more relevant in the online and hybrid learning platform in Nigeria given the paucity in the facilities, software, and peripheral interfacing components. With connectivism, nurturing and maintaining connections is needed to facilitate in online and hybrid

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learning platform. The prodigious availability of the facilities, software, and peripheral interfacing components greatly enhances the nodal connections and networking in connectivism. Yet, with efforts that educational institutions are making Nigeria to provide the facilities, software, and peripheral interfacing components for effective nodal connections and networking, connectivism becomes a necessity. If sharing and networking becomes the thrust of connectivism, the present situation of lack or paucity in the needed tools for connectivism becomes a need to share and network with what is available.

Based on the interest and the enthusiasms generated by online and hybrid learning platform, the future of connectivism as a learning theory is propitious in Nigeria. As revealed by the findings of the research, students reported that online and hybrid learning made learning less stressful, more flexible, helped them to network with the peers, and allowed them to successfully complete their programs within the expected timeframe. Agunloye (2021) explained, before the COVID-19 pandemic, Nigeria, the nation could only boast of one educational institution that is online-based, the NOUN with almost 515,000 students to be the largest tertiary institution in the country. The advent of COVID-19 pandemic with the attendant long period of lockdown, private universities in Nigeria started jostling for relevance in the online and cyber learning world. Oladunjoye (2020) offered that COVID-19 pandemic that necessitated the closure of schools ushered many online measures, primarily online, to continue learning despite the closure of schools. The author insisted that if the online and hybrid innovations are fostered education will be accessible to many Nigerians.

There are a few points of reflection that emanate from this study; not only related to the findings, but also the research processes. Firstly, there is considerable interest developing in the field of online and hybrid education in Nigeria. This is not only shown by the number of

participants in the study, but by the level of awareness and the level of participation exhibited by individuals and groups encountered in the process of the project. The interest and participation in technology and internet mediated learning among Nigerians are not only confined to practice. It also extends to the area of research and development. Academically, the amount of journal articles, reports, blogs and other publications by Nigerian academics and tech practitioners in this field of learning attest to this growing interest. Nigeria, like the rest of the countries on the continent of Africa, is teeming with young people who understand the impact and value of technology in our world. They understand that the age of the "Internet of Things" (Wang et al., 2022) is upon us and techno internet has become a norm in all spheres of life.

The youth in Nigeria are particularly computer and internet savvy. They are quick to adapt to new technologies. This is perhaps why Nigeria is leading the rest of Africa in technology related start-ups (Olasoji, 2021). Many college students have a positive perception towards use of technology in general, and particularly with the aspects of technology mediated learning. Many students, especially the youth display strong interest and disposition to learning via the non-traditional technology mediated platforms such as zoom, Massive Open Online Courses (MOOCs), Educause, etc. However, the knowledge, skills, enthusiasm, savviness and passion of the Nigeria youth and students in technology, and in other internet mediated learning situations have failed to translate into the desired quality of success for educational institutions and businesses. Furthermore, as one researcher, Pamela Rank, (2018) rightly affirms, connectivism represents a wholesome opportunity for the student-centered learning to progress rapidly. Essentially, connectivism based classroom offers the students the flexibility, affordance and the leverage of choice making about their learning experience. It promotes a group dynamic in the classroom while allowing the students to express their differences and uniqueness.

The reasons for this seeming irony of low yield in the face of the huge potential in the country to leverage the abundant knowledge and skills are many and varied. Nigeria as a nation is bedeviled by myriad of challenges. Some of the notable factors that constitute the challenges include: poor performance by successive governments in the implementation of the nation's education policy, poor technology and social infrastructure in the country, over population, corruption, and poor planning. These realities confronting Nigeria's education and business ecosystem are confirmed by the findings in the study. The hope is that the government and its leaders may continue to grow in the awareness of the need to empower the youthful population of Nigeria through better quality service delivery and improvement in technology and other social infrastructures necessary for smooth learning – whether it is online and hybrid or the traditional face-to-face learning models.

Impact of COVID-19 on the Study

As stated in earlier chapters, the full impact of COVID-19 and its new variants on the health and well-being of domestic and global economies is yet to be fully studied and analyzed as the world continues to grapple with the health crisis. With about 3,142 COVID-19 deaths in Nigeria (Nigeria Center for Disease Control [NCDC], 2022), and more than 4 million deaths around the world, the devastation caused by COVID-19 is a human disaster. Several schools in Nigeria and in different parts of the world were shut down for months as a result of the pandemic. In some ironic way, in the midst of the pain, suffering, deaths, and economic meltdown brought on by COVID-19, many schools and students were forced to migrate from the traditional, face-to-face learning model to either fully online or hybrid courses. Today, online and hybrid learning have become commonplace in most universities and other higher institutions in Nigeria and beyond. This drastic transition and massive adoption of technology-based learning

models since the outbreak of the COVID-19 pandemic could be considered a positive consequence of the global pandemic.

Within the space of two years, COVID-19 pandemic has tremendously impacted the world and every facet of human activity in ways unimaginable. Prior to the outbreak of the pandemic, online and hybrid learning in Nigeria were considered distant alternatives to traditional, face-to-face learning. Most universities in Nigeria were either at the verge of introducing or undecided about the adoption of online and hybrid learning. In addition, companies in Nigeria, until the outbreak of the pandemic were reluctant to offer jobs to graduates who obtained their degrees and certificates through online and hybrid learning programs.

Part of the goal of this dissertation was to argue for the increased adoption of online and hybrid learning by students in Nigerian tertiary institutions. And then, COVID-19 pandemic happened: the world changed. As a result of the lockdown brought down by the pandemic, schools had to develop new ways of continuing their curriculum, while ensuring the safety of their students and teachers. Similarly, companies were forced to close their offices and develop new strategies that would allow their staff work remotely.

The COVID-19 health pandemic has drastically altered the world, and forced people to adopt new ways to solving problems at a level that was unimaginable two years ago. As findings from the study show, online and hybrid learning models have become common place in the Nigerian higher education eco-system. Studies show that students and teachers in different parts of the world including Nigeria have developed positive attitude towards these learning models, and the rate of adoption and practice are on an increasing trajectory.

Similar to the reality in many developing countries in the world, companies in Nigeria have begun to accept candidates with degrees obtained online. Since the COVID-19 pandemic

practically shut down businesses, entrepreneurs have no choice but to learn and develop alternative ways to project their businesses to the world. Those who were intransigent on continuing the traditional method of operating their businesses soon discovered that their only alternative to navigating the financial constraints brought on by the pandemic, was to embrace the use of technology and internet mediated business models.

The COVID-19 pandemic has also opened a new academic and business horizon for multitude of young Nigerians. For example, individuals, who, before now, had been constrained by their lack of fund from traveling to foreign countries to acquire international degrees can now actualize their dreams without necessarily leaving their homes through the use of online and hybrid education models. Furthermore, young Nigerians who had despaired about getting a university education as a result of the limited admission offers in traditional institutions where only face-to-face learning model is practiced are now able to attend tertiary institutions via the online and hybrid model of education. Thus, more people can develop themselves through education, and further expand their chances of having better jobs and a higher quality of life future for themselves and their families.

Before the outbreak of the COVID-19 health pandemic, the use of smartphones for some Nigerians was limited to just making and receiving calls, or the intermittent chats with family and friends. Technologically, the COVID-19 health pandemic has educated the minds of Nigerians to the endless opportunities that abound from the use of smartphones. They have discovered supplementary ways to use some of the applications that they are familiar with, such as WhatsApp, Facebook, Twitter, Instagram etc. According to Adepetun (2021), studies have shown that Nigeria had a 43% spike in mobile app downloads, compared to other African countries like South Africa and Kenya.

One of the causes for the spike in mobile apps downloads in Nigeria is the search for more information about the infectious disease, as mobile apps and web platforms have emerged as one of the prevailing tools to educate people. Nigerians, and indeed the world have come to realize that the quickest and most efficient ways of tracking their health is basically in their palms. Similarly, studies have shown a significant boom in the interest of more Nigerian youths in the field of science and technology. The need to create apps that could help educate, track, and possibly curb the spread of the corona virus disease has led to more Nigerian youths moving into the field of technology. Africanews (2022), an online newspaper stated that the demand for African (with Nigeria being one of the countries) software developers increased in the year 2021. Increased demand for remote tech talent, which was enhanced by the pandemic, created more remote for African developers. Nigeria led the Continent of Africa in rolling out talent in this field by adding an estimated 5,000 new professional developers to its pool in 2021.

However, this study does not include the analysis of the health pandemic in its research question and in the survey instrument. There is no doubt that the impact of COVID-19, which has spurred the development of online and hybrid learning, is an important area of study to focus on going forward. Finally, this study recognizes how broad the knowledge field of online and hybrid learning has become. Therefore, it does not pretend to answer all the questions that pertain to this field of learning. This study is simply a foundation upon which further studies could be carried out in the future.

Conclusion

The study showed that online and hybrid learning programs are considered useful and in increasing demand by students in Nigerian universities and other tertiary institutions of learning. Both learning models allow the students or participants to study at their own pace and in more

convenient locations. Not only are these models more flexible, but they arguably foster independent learning.

The main purpose of the study was to explore the perceived effects of online and hybrid learning on the experience of students in Nigerian institutions. The variables used for evaluating online and hybrid learning include student experience (EXP), participation of students (PAR), and technological component impact (TECH). These variables were measured against the satisfaction of students (SAT). The study utilized embedded mixed-method design with a sample population of 211 students who can be categorized into three sub-groups: students who are currently enrolled in one or more courses or in a full program of study delivered using an online or hybrid learning model at any of the Nigerian universities accredited by the NUC; graduates who have completed a college degree or a graduate program at local distance learning centers or a university through the online or hybrid learning model in Nigeria; and students who have participated in short certificate programs or audited a course in an online and hybrid education for at least one semester (or three months) at a Nigerian university. The targeted population was sourced from twelve (12) universities in Nigeria.

A survey was carried out through Qualtrics. This wholly online instrument was necessitated by the COVID-19 pandemic lockdown in place in Nigeria at the time of the study. A pool least regression analysis was carried out, and basic assumptions were analyzed. The outcome showed that some of the assumptions were not met. Hence, a robust panel least square regression was carried out to correct the assumption errors with the model's goodness of fit. This second phase of the analysis showed that the entire model is fit and therefore useful for interpretation and policy recommendations. The results of the survey analysis also showed that students' experiences, participation of students, as well as the impact of the technological

components of online and hybrid learning were significantly and positively related to the satisfaction of students. This implies that the targeted population is satisfied with the processes and procedures carried out in the program at sampled Nigerian institutions. The study concludes that the practice of online and hybrid learning in Nigeria has improved. One extremely important variable that could have helped to enrich the outcome of this study is the impact of the COVID-19 pandemic on the experiences of students in online and hybrid learning.

Recommendations for Future Study

Online and hybrid learning in Nigerian universities involves the delivery of knowledge, and skills through the internet, and online or virtual based learning platforms. In addition, online and hybrid learning involves tools and instructional models that facilitate self-motivation and interactions among students. Further, it encourages the fostering of relationships that sustain learning and communication.

As a study with limited scope, this research is unable to respond to focus on all the issues related to online and hybrid learning at Nigerian universities and other higher institutions. The various stages involved in the design, literature review, data collection, and the analysis of the findings confirmed this understanding. Therefore, in order to continue the discourse, some recommendations will be suggested toward future studies.

The following recommendations are listed for future attention:

- There is need for a study that wholly focuses on the quality of technology engagement at institutions that provide online and hybrid education in Nigeria.
- There should be provisions for training in order to reduce non-participation of students and facilitators.

- Common groups should be created to encourage departments or faculties to develop online and hybrid courses by introducing new ideas that will enhance the sustainability of online and hybrid programs in Nigerian universities.

- There should be a national policy on the use of online and hybrid learning in Nigerian universities, which will enable participants, institutions, and governments to embrace technology.

- Better internet technology and space must be provided at all universities and tertiary institutions for smoother experience of online and hybrid learning.

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Distance Learning Experience Questionnaire

Graduate School of Education and Psychology (GSEP)
Pepperdine University, Los Angeles

Dear Respondent,

Request for Completion of Questionnaire

Thank you for accepting to participate in this research by accepting to share your experience of participating distance (online & hybrid or blended education) learning at a Nigerian higher education institution.

I am a doctoral candidate in Learning Technology at the Graduate School of Education and Psychology, conducting a research titled: **Exploring the perceived experiences of students in online and hybrid learning at Nigerian Universities.**
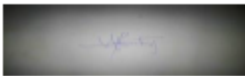The research is in partial fulfilment of the requirements for the award of the Doctor of Education (Ed. D.) degree in Learning Technologies. This research is aimed at determining the perceived experiences of students participating in the distance (online and hybrid) learning at Nigerian universities.

Consequently, while the survey is voluntary, your feedback is important, and I appreciate you taking the time to complete this survey. It should take approximately 20 minutes to complete.

All of the information that you provide in this survey will be handled with utmost confidentiality. Therefore, no data that could be used to identify participants will be disclosed in the reporting of the findings. All feedback information supplied in this survey will be used for academic purpose only, and the outcome of this study will contribute to the advancement of distance learning (including online and hybrid) policies in Nigeria.

Finally, it is assumed that your decision to complete this survey questionnaire is indicative of your consent to freely participate in this study. Once again, thank you for your participation

Yours faithfully,

Amaechi Ugwu
Researcher (Pepperdine University, USA)

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SECTION A (Demographic Information)

INSTRUCTION: Please tick (√) to fill in the necessary information as may be appropriate.

1. Gender of respondent: Male [ ] Female [ ]
2. Age group of respondent: 20 years and below [ ] 21-30years [ ] 31-40years [ ] 41-50years [ ] 50years and above [ ]
3. Educational level of respondent: SSCE/GCE [ ] NCE/Diploma/OND or Equivalent [ ] HND/B.Sc. or Equivalent [ ] Postgraduate [ ]
4. Have you participated (or are currently participating) in a distance (online/hybrid) learning course or program at a university in Nigeria? Yes [ ] No [ ]
5. What level of study did you complete or are currently enrolled in? Certificate program [ ] OND [ ] B.Sc. [ ] M.Sc. [ ] MBA [ ] MPhil [ ] PhD [ ]
6. What was the duration (or expected duration) of your course or program? Less than a year [ ] 1-4years [ ] 5-9years [ ] More than 10 years [ ]

SECTION B (Satisfaction of students)

INSTRUCTION: Please indicate as frankly as possible the extent to which you agree or disagree with the following statements. Also, indicate Yes or NO to questions 15 & 16.

S/N	Statement	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	Satisfaction of Students with Online/Hybrid learning Models					
7	Online/hybrid learning program in my school is academically engaging and rigorous					
8	The learning models used motivate students to learn and network with friends					
9	Students are satisfied with the use of these learning models					
10	Students can confidently recommend online/hybrid learning to friends and family members					
11	Online/hybrid learning models enhance students capability in their various fields of study					
12	Using online/hybrid learning process absolutely meets my learning needs					
13	I would like to take another course/program with online/hybrid learning platform in the future					
14	Online/hybrid learning platforms offers students the medium to discuss their ideas					

S/N	Statement		
	and concepts with other students				
15	I will keep using online/hybrid learning platform	YES [ ] NO [ ]			
16	My performance improved using online/hybrid learning platform	YES [ ] NO [ ]			

<div align="center">

SECTION C (Online and Hybrid Learning)
</div>

INSTRUCTION: Please indicate as frankly as possible the extent to which you agree or disagree with the following statements. Also, indicate **Yes** or **NO** to questions 25 & 26.

S/N	Statement	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	Student Experiences with Online/Hybrid Learning					
17	Hybrid/blended learning involves a combination of online/internet mediated learning and traditional on-campus face-to-face instruction and learning models					
18	Online/hybrid learning in your school allows students to study at their own pace and from anywhere (remotely)					
19	It is advantageous because materials placed online can be used for a longer period of time					
20	It helps to balance school and work rhythm					
21	It is an alternative means of attending class					
22	It facilitates the progress of independent learning					
23	It helps to lessen the withdrawal rate of students					
24	Online/hybrid learning increases students' access to learning and opportunities					
25	Is online/hybrid learning a convenient learning platform?	YES [ ] NO [ ]				

26	Have online/hybrid learning improved my mental capability?	YES [ ] NO [ ]				
	Participation of Students in Online/Hybrid Learning Environment					
27	Students prefer online/hybrid learning because it enhances learning and facilitates interactions between students and instructors					
28	Students prefer online/hybrid learning because it allows them to create and expand their network of friends					
29	Classes are more interesting and interactive in online/hybrid learning					
30	It creates opportunities for informal academic learning and social interaction with fellow course/program mates					
31	Students in Online/hybrid learning are highly motivated					
32	It provides opportunity for students to express their views					
33	It enables students to receive timely feedback from instructors and from course mates					
34	Students prefer online/hybrid learning platform because it is an affordable way of getting university education					
35	Apart from online learning platform, did you participate in hybrid or blended learning platform?	YES [ ] NO [ ]				
36	Are you involved in class group discussions or activities?	YES [ ] NO [ ]				
	Technological Component Impact of Online/Hybrid Experiences of Students					
37	Cost of internet data (Wi-Fi) affects the process of learning					
38	Poor access to the internet is a major problem faced by students in my school					
39	Internet is very important in online/hybrid learning					

40	Student find it difficult to use new learning management applications in distance learning classrooms					
41	Social media played an important role in distance (online/hybrid) learning.					
42	Students find it easy to use learning software like zoom, adobe connect and other distance learning software in class					
43	Students are more devoted to study and have less time for personal and social life					
44	Distance learning in my school involves the use of web-based technologies (online learning) for delivery of knowledge					
45	Did you have adequate internet facilities during the course of your program?	YES [ ] NO [ ]				
46	I had more problem purchasing internet data than access to the internet?	YES [ ] NO [ ]				

APPENDIX B

Informed Consent

PEPPERDINE
— UNIVERSITY —

CONSENT LETTER

Study title: *Exploring the perceived effects of online and hybrid learning on the experiences of students in Nigerian universities*

Dear Respondent,

My name is Amaechi Ugwu. I am conducting a study on the perceived experiences of students in online and hybrid learning at Nigerian universities. You may only participate in this research if you are 19 years of age or older, and enrolled in an online or hybrid course/program at a Nigerian higher education institution.

The purpose of the study is to examine the perceived effects that technology and the internet mediated learning models like online and hybrid have on the experiences of students at Nigerian tertiary institutions. The study aims to lend further clarity to on-going conversation about online and hybrid learning as efficient and reliable alternative models of learning at universities and other higher educational institutions in Nigeria particularly in this time of Covid -19 pandemic. In addition, the study aims to better understand students' class room participation and engagement level with their instructors, course mates, and with technology in the online learning environments.

Further, this is a mixed method study. The procedure involves the use of survey to capture both quantitative and qualitative style questions to explore the experiences of 200 (participants) students who are currently enrolled or recently graduated from programs using the online and hybrid learning models in Nigerian universities. The recruitment of the study participants will be done through a system known as network sampling. In other words, it involves you helping us to contact your friends, friends of your friends, and course mates or acquaintances who may meet the study criteria. The candidates will be recruited using a combination of social media, telephone and email platforms.

As a participant, you are expected to complete the survey within a period of two weeks from the first day you receive the link. Also, the survey will require approximately fifteen to twenty minutes (15 -20 minutes) to complete.

In this study, the expectation is that "no more than minimal risk" will be tolerated. This means that the study will be done in a way that would not expose any of the participants to danger or identify compromise. The main tool for conducting the study is the use of a survey. The only possible risk to subjects involves the potential breach of confidentiality of your identity. To reduce these risks to a minimum level, the principal investigator will ensure that the confidentiality of all respondents will be carefully protected through deliberate stripping of all identifiers during data

collection process. This assurance of confidentiality will equally be conveyed to you in the Recruitment Script.

There is no assurance of any direct benefit of this study to the participants. However, the hope is that findings from this study could contribute to the on-going conversations around online and hybrid learning as reliable alternative models of learning at universities and other institutions of higher education in Nigeria, particularly in this challenging time of covid-19 pandemic.

Your responses to this survey will not include your names or other personal information that could easily help to identify you. In addition, all information gathered during this study will be kept anonymous and confidential. The information will be secured in an offline hard drive of the principal investigator's laptop throughout the course of the data collection, collation and analysis. All emails correspondences related to this study will be deleted at the end of the study.

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study.
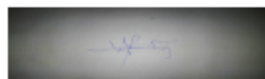For study related questions, please contact the investigator: **Amaechi Ugwu**
Through the following email addresses: Amaechi.ugwu@pepperdine.edu;
miles9614@gmail.com
For questions concerning your rights or complaints about the research contact the Institutional Review Board (IRB):

- Phone: 1(310)568-2305
- Email: gpsirb@pepperdine.edu

You can decide not to be in this research study, or you can stop being in this research study ('withdraw') at any time before, during, or after the research begins for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with Pepperdine University.

You are voluntarily making a decision whether or not to participate in this research. By completing and submitting your survey responses, you have given your consent to participate in this research. You should print a copy of this page for your record. Thanks in advance for your participation. We sincerely appreciate your time and efforts in this study process.

Amaechi Ugwu
Principal Researcher,
Pepperdine University, Los Angeles,
California, USA

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APPENDIX C

Pepperdine University IRB Approval

PEPPERDINE

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Date: April 16, 2021

Protocol Investigator Name: Amaechi Ugwu

Protocol #: 20-09-1440

Project Title: Exploring the Perceived Effects of Online and Hybrid Learning on the Experiences of Students in Nigerian Universities

School: Graduate School of Education and Psychology

Dear Amaechi Ugwu:

Thank you for submitting your application for exempt review to Pepperdine University's Institutional Review Board (IRB). We appreciate the work you have done on your proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations 45 CFR 46.101 that govern the protections of human subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an amendment to the IRB. Since your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite the best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete written explanation of the event and your written response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at community.pepperdine.edu/irb.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval. Should you have additional questions or require clarification of the contents of this letter, please contact the IRB Office. On behalf of the IRB, I wish you success in this scholarly pursuit.

Sincerely,

Judy Ho, Ph.D., IRB Chair

cc: Mrs. Katy Carr, Assistant Provost for Research