Post Covid-19: Sustainable E-learning Development and Resource Marketing in Nigerian University

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Abstract

Education could be expressed as the bedrock which anchors the foundation of socio-cultural, economic, industrial and all-round development, the advent of Information and Communications Technology (ICT), has unlocked the threshold of a new window of unrestricted learning that is not constrained by time, distance, space and finances. COVID-19, a devastating pandemic has resulted in a horrific setback in education and economic disorder globally; since its outbreak in late 2019 in Wuhan, China and the resulting shutdown of nearly all activities of government globally, the educational sector was not spared in the resulting consequence. The main purpose of this study is to examine the impact of sustainable development and marketing of E-learning resources in Nigerian Universities as a panacea to the devastating effect of a post COVID-19 ear; based on the experienced shortcomings of the traditional learning process. The study evaluates the basic concept of E-learning using Borje Holmberg theory of interaction and communication as well as trends in the industry. Descriptive survey approach was adopted in which; questionnaires were specifically administered to respondents (E-learning students and instructors) in selected institutions, personal interviews were also conducted; where the survey instrument could not cover effectively. Multiple regression analysis was used to obtain the outcome of the study, the study findings revealed that there is a significant relationship between sustainable E-learning development and resource marketing in Nigerian Universities in a post COVID-19 period; based on the outcome of the data analysis. The conclusion of the study was drawn from the objectives and recommendations were made to encourage universities to adopt the E-learning platform as a solution to unhindered teaching and learning process in the university system.

Keywords: *E-learning, marketing strategy, resource development, sustainability, Nigerian university.*

Introduction

E-learning is basically a ratified system of teaching with the support of electronic assets to enhance out of the classroom interaction between the instructor and the learner using invaluable resource of the internet through computers; smart phones and other audio-visual devices. Historically antecedents have revealed that the development of the present E-learning dates back to the 17th century with the use of _parcel post' to deliver learning materials to university students; with the continuous development in technology in the 18th century, radio waves and television were deployed in learning delivery (Kentnor, 2015). In the late 19th century, aggressive advances in technology resulted in the deployment of computers by universities in USA in their preceding orders as follows: (University of Phoenix, University of

Illinois, New York University E-learning, Western Governor's University, California Virtual University and Trident University International) at the tertiary institution level. (Miller, Benke, Chaloux, Ragan, Schroeder, Smutz, Swan, 2004 & Rowan, 1983).

In the late 20th century, 1996 precisely, Bill Robie transformed the E-learning platform by congregating HTML with a web-established gadget that could enhance the process asynchronous transmission of learning between students and faculty (Radford, 2011). At the beginning of the millennium, the dynamic improvements in Information Technology (IT) had increased the level of enrollment for E-learning program between 8 to 20%, between 2008 and 2019, various studies have shown an increasing percentage of student enrolment for E-learning program as ranging between 20 to 50% when placed side by side with face-to-face learning (National Center for Education Statistics 2016; Haynie, 2015 & Jazzar, 2012). A dramatic and massive shift in the upsurge of student enrolment was experienced during the global Corona Virus pandemic that devastated every facet of human endeavor, with E-learning platform becoming the panacea to safe, reliable and sustainable method for students to learn and instructors to deliver their resources effectively (Aristovnik, Keržič, Ravšelj, Tomaževič & Umek, 2020; Giesbers, Rienties, Tempelaar & Gijselaers, 2014: Stewart, Giesbers, Rienties, Tempelaar & Gijselaers, 2014 and Harlow & DeBacco, 2011).

COVID-19 was coined out from the name Corona Virus by World Health Organization (WHO), to be a _Public Health Emergency of International Concern in January, 2 21020 (Berkeley, 2020 & Adhanom, 2020). verifiable scientific research has shown that this pandemic was first discovered in Wuhan, China, (Wassenaar & Zhou, 2020; Andersen, Rambaut, Lipkin, Holmes & Garry, 2020; Sun, He, Wang, Lai, Ji & Zhai, et al. 2020; Gan, 2020; Li, Guan, Wu, Wang, Zhou, & Tong, et al. 2020; Good & Greicius, 2020; Wall, 2020 & Ma, 2020 & Scripps Research Institute.2020). COVID-19 is scientifically confirmed to spread mostly through personal contact, sneezing, breathing, coughing and infected surfaces. measures to prevent the spread of the diseases are as follows; where cases are confirmed, the patients have to be isolated for medical attention, thorough contact tracing should be made on whoever the patient came in contact with to ensure that such persons also self-isolate from the public, (Eshiett & Eshiett 2021: Smith, Thomas, Snoswell, Haydon, Mehrotra, Clemensen & Caffery, 2020; Ohannessian, Duong & Odone, 2020; Keshvardoost, Bahaadinbeigy &; Fatehi, 2020 & Ingram & Ward, 2020). Hence, once an infected patient is identified, the patient must have to self-isolate and remedial treatments are administered to the patients, it could lead to death within a period of two weeks. [Cascella, Rajnik, Cuomo, Dulebohn, & Di Napoli, 2020; Brüssow, 2020).

Marketing strategy is a vital phenomenon when considering sustainability of every decision taken by business concerns, the essence of marketing strategy is to increase derivable benefit of product value that could satisfy the customer, hence a thorough examination of the relationship between the marketing mix (Product, Price, Place and Promotion) has becomes necessary. The effect of product and its value to the customer is a function of the product quality and how it is perceived by the customer, hence, producers must differentiate their products to create value to the customer. The allocation of product price must be such that it has direct relationship with the product value as perceived by the customer. In the event of stiff industrial competition, firms must ensure that the price allocated to any product must represent the exact value added that will be satisfactory to the customers; hence, the firm stand a chance of losing its customers to rivals.

Production is incomplete until the products are delivered to the customers, the increased value added by technology on product logistics and delivery has created more value to the customer by reducing delivery cost and making product available to the customer at their convenience; hence, institutions that cannot take adequate advantage of value-added delivery of products to customers are at the risk of losing such customers to viable competitors. Promotion has become an avenue of differentiating firms‘ product and adding value to customers, The need

to identify what promotional strategy should be assigned to a particular target market has a direct implication on product value and customer satisfaction,

In conceptualizing the sustainable marketing of E-learning resources to higher institution of learning, several studies has been conducted by various researchers with empirical evidence as listed and analyzed in Table 1 below: In a series of study by (Hoppe & Breitner, 2004; Hoppe & Breitner, 2003 and Meredith & Newton, 2003) on ‒E-learning and sustainable Business Models," the studies focuses on the basic models and strategies that E-learning could be adapted to address sustainable educational, economical, pedagogical and technological goals. In a similar study by the authors ((Kebritchi, Lipschuetz & Santiague, 2017: Conrad, Donaldson, 2004; and Laurillard, 2006), on Issues and challenges in engaging students by instructors on the E-learning applications, the authors specifically explained the basic steps that should be diligently followed in adapting a sustainable E-learning application in any organization, In a similar conducted by ((McFarlane, 2011; Myers, 2008; Siemens, 2005; and Peter & Chan, 2004). on _Pedagogical methods in which instructors disseminate to their learners‘ the authors unambiguously outline a step-by-step method in disseminating information on the E-learning platform, in a similar study by (Rau & Schmidt, 2019; and Rau & Schmidt, 2019), on _Interactivity and virtual representation as valid aid to learning’ the authors emphasized on the need to make provision for representative learning aids to enhance instructional assimilation.

In a bit to assess the perception of both the students and the instructor, the authors (Moreno, Reislein, & Ozogul, 2010; Galanouli, 2004; Ho, 2002 and Bååth, 1982), on Perception and participation of instructors and students in the whole process of learning, the authors emphasized on the need to allow for peer collaboration as a means of evaluating students participation.

Other empirical studies conducted also include; (Dawley & Dede, 2014; Chini, Madsen, Gire, Rebello & Puntambekar, 2012; and McLaren, DeLeeuw & Mayer, 2011), on Using simulations to clarify web-based learning the authors explained the use of simulations as a key to understanding some core concept in science, engineering and technology. A similar study by (Magner, Schwonke, Aleven, Popescu & Renkl, 2014 and Baddeley 1974), on Motivation of the students to learn, (Moreno & Mayer, 2007), on the creation of an Interactive multimodal learning environments and (Clark, Nguyen & Sweller, 2011; and Chang & Yang, 2010), on the need for cognitive or evidence based learning process. In a similar study by (Khacharem, Spanjers, Zoudji, Kalyuga & Ripoll, 2013; Spanjers van Gog Wouters & van Merriënboer, 2012; Ibrahim, Antonenko, Greenwood & Wheeler, 2012; Spanjers, Wouters, Van Gog & Van Merrienboer, 2011; and Florax & Ploetzner, 2010).

On the use of segmentation as a valid tool in the virtual platform for picture labeling, spatial proximity and in learning from animated worked-out examples , A similar study by the authors (Clark & Richard, 2011; Park, Moreno, Seufert & Brü, 2011; Harskamp, Mayer, & Suhre, 2007; Mayer & Moreno, 2003; Kalyuga, Chandler & Sweller, 2000),on the use of _State of the Art‘ multimedia resources as a guidelines for customers and designers, learning instruction in sciences and to incorporate learners experience and in teaching for clear understanding in medical classrooms using multimedia design principles.

These foregoing studies are the closest to the study on hand, the core essence of this study lies in filling the gap in literature on the aftermath effect of COVID-19 on teaching and learning process in Nigerian universities, the management of our institutions are becoming very much concerned about the possibility of a massive outbreak of the pandemic in our campuses, hence, the current lull in academic activities in Nigeria. Few institutions such as University of Lagos (Unilag), have already drawn up a resumption program (registration, assignment, test and semester exams) for students to fully access all academic activities on the E-learning platform pending when normalcy returns. The same goes for universities in USA, Europe, Asia, Australia, hence the Unilag example is a more sustainable process to adopt. Therefore, this study

objectively considers the need to conduct this present study objectively market institutions on the need to adopt and develop sustainable E-learning resources as a Post Covid-19 strategy for a sustainable and effective delivery of learning in Nigeria.

Table 1 Previous Conceptualization on E-learning Resources Development and Marketing

Study	Conceptualization	Item of Trust	Parameter of Measurement
(Hoppe & Breitner, 2004; Hoppe & Breitner, 2003 and Meredith & Newton, 2003)	Elearning Model and sustainabiliity	E-Learning	Empirical Study; Modelling and Sustainability
(Kebritchi, Lipschuetz & Santiague, 2017: Conrad, Donaldson, 2004; and Laurillard, 2006)	Successful e-learning applications	E-learning	Empirical Study; Issues on Applications and Adaptability
(McFarlane, 2011; Myers, 2008; Siemens, 2005; and Peter & Chan, 2004)	Methods in which instructors disseminate to their learners	E-learning	Empirical Study; on Pedagogical methods
(Rau & Schmidt, 2019; and Rau, & Schmidt, 2019).	Virtual representation as valid aid to processes in learning	E-learning	Empirical Study; Interactivity and virtual representation
(Moreno, Reislein, & Ozogul, 2010; Galanouli, 2004; Ho, 2002, and Bååth, 1982)	Participation of instructors and students in the whole process of learning	E-learning	Empirical Study; On Perception and participation in the learning process.
(Dawley & Dede, 2014; Chini, Madsen, Gire, Rebello & Puntambekar, 2012; and McLaren, DeLeeuw & Mayer, 2011)	Simulations application to clarify web based learning	E-learning	Empirical Study; On Simulations in web-based learning
(Magner, Schwonke, Aleven, Popescu & Renkl, 2014 and Baddeley 1974).	Effect of motivation in the learning process	E-learning	Empirical Study; utilizing set conditions to motivate the learners
Moreno, R., & Mayer, R, (2007)	Ensuring that there is an enabled environment for multimodal learning.	E-learning	Empirical Study; Interactive multimodal learning environments
(Clark, Nguyen & Sweller, 2011; and Chang & Yang, 2010)	Efficiency and effective in the learning process.	E-learning	Empirical Study; Cognition (Observation perception and reflection)
(Khacharem, Spanjers, Zoudji, Kalyuga & Ripoll, 2013; Spanjers van Gog Wouters & van Merriënboer, 2012; Ibrahim, Antonenko, Greenwood & Wheeler, 2012; Spanjers, Wouters, Van Gog & Van Merrienboer, 2011; and Florax & Ploetzner, 2010.).	Effect of adaptation to learning through; picture labeling, spatial proximity and animated worked-out examples	E-commerce	Empirical Study; Segmentation.
(Clark & Richard, 2011; Park, Moreno, Seufert & Brü, 2011; Harskamp, Mayer, & Suhre,	Use of multimedia resources and	E-commerce	Empirical Study; Multimedia presentations

2007; Mayer & Moreno, 2003; Kalyuga, Chandler & Sweller, 2000),	designers, learning instruction in applied and medical sciences.		

Statement of the Problem

The dynamism and pervasive effect of IT has impacted positively on basically all sector of human endeavor, the process of adopting e-learning in the Nigerian Universities involves the determination of all stakeholders to accept the need for an E-learning platform, readiness to maintain all the necessary resources required to create a robust E-learning resources. Marketing each of the university in Nigeria on the need to adopt this platform could be an uphill task if the negative connotation about E-learning not corrected, our aspiration for an industrialized nation will remain a pipe dream as articulated below:

Universities globally are most often regarded as the center for research and technological incubation, and research has been accepted as the most valid process of identifying societal problems and proffering solutions to them. Our universities (Federal, State and Private) are yet to provide solutions to our ever-increasing problems, these could be due to lack of collaborative engagements with their counterparts globally in problem solving. E-learning provides a veritable platform for ease of transfer of ideas. processes and technology. The level of infrastructural facilities development in our universities has become a recurring negative decimal in our developmental history; and the effect of this problem seem to affect almost all facet of our economic growth national development. Annual national budgetary allocation to education is still below 20%, hence; it is difficult if not impossible to attain the expected level of development if increased funding is not made available to the institution for facilities procurement and development one of which is E-learning resources**.**

The advent of technology is meant to facilitate the process of delivering service effectively and efficiently, it is quite disturbing when improvement in technology in a particular sector is viewed as a means of job insecurity. It is very common to hear academic staff say 'E-learning will take away our jobs' this is a wrong perception because; where E-learning is introduced globally, it has added positive value to academic and administrative activities, and reduction in running cost of higher education globally. Hence, the process of attaining sustainable E-learning resource development in Nigerian universities within the framework of a COVID-19 pandemic connotes that; these challenges must be addressed to enhance the full potentialities of the Nigerian educational sector.

Objectives of the Study

The objective of this study is to evaluate the sustainability of E-learning resources and marketing development in Nigerian universities within the framework of a COVID-19 pandemic. Other objectives to be examined by the study includes:

i. To evaluate the effect of collaborative engagements on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era.
ii. To ascertain the effect of increased funding on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era.
iii. To assess the impact of negative perception on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era.

Research Questions

i. What is the significant effect of collaborative engagements on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era?
ii. To what extent does increased funding on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era?
iii. What is the significant impact of negative perception on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era?

Research Hypotheses

H_{01}: Collaborative engagements has no effect on sustainable development of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era

H_{02}: Increased funding does not affect sustainable development of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era.

H_{03}: Negative perception has no significant effect on sustainable development of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era.

Literature Review

Concept of E-learning

The concept of E-learning is an interactive and participatory relationship between the service provider on one hand and the students Hanna,). The success of any E-learning lies on the collaborative interaction between the instructor, audience and the back-office staff which is a team of IT professionals in their different areas of specialty to enhance ease of transition on the platform. (Hanna, Glowacki-Dudka, & Conceicao-Runlee, 2000), one of the basic features of an effective e-learning resource management is the continous training and retraining of team members especially for the instructors who are nor technologically inclined, to assimilate the nitty-gritty of the resources (technology, digital content and instructional procedures) to enhance an effective curricula development. (Kebritchi, Lipschuetz, & Santiague, 2017; : Conrad, Donaldson, 2004; and Laurillard, 2006)).The next phase involves the ability to motivate the learners on effective time management, innovative contribution to each discussion and the capacity to encourage and carry peers along in the class discussion to enhance overall success of e-learning. (Hanna, Glowacki-Dudka & Conceicao-Runlee 2000).

In achieving optimal result, the instructor must be able to interrelate with both the back off team and the audience through a feedback process, to ensure that the providede digital content is effective, engaging and all encompassing, by incorporating audio and video componenets to create opportunity for the audience to engage in the discussion. (Eshiett & Eshiett, 2020; Kebritchi, Lipschuetz, & Santiague, 2017). E-learning most often involves the audience located at different regional locations, hence the time zone of each location must be coopted in the planning to ensure that all participants are connected, prior information must be sent to enhance adequate preparation in material and other resources. (Lieblein, 2000).

The impact of E-learning in transformative impartation of knowledge affords students the opportunity to engage with each other in academics and socio-cultural exchanges and interpersonal, (Myers,2008), the main issues and challenges to contend with while teaching for a successes e-learning outcome include; i) establishing an attractive and enduring environment ii) motivating students to engage on their experiences and challenges, iii) deploying workable strategies that could engage the students to get committed to goals and objectives, iv) create

opportunity for exchange of ideas on disproportionate societal imbalances, v) encourage student to execute workable solutions Kebritchi, Lipschuetz, & Santiague, (2017). E-learning provides alternatives and flexibility in adopting convenient learning methods when compared to face-to-face teaching, better improvements in course contents and the diversity in student population; affords both the instructor and the students to interact with a wide range of trans-cultural relationship. (Giesbers, Rienties, Tempelaar & Gijselaers, 2014; and Stewart, Harlow & DeBacco, 2011). E-learning has the advantage of allowing students to interact on a real-time basis with clarity in responses from the instructor. Hrastinski, 2008 and Hanna, Glowacki-Dudka, & Conceicao-Runlee, 2000).

Learning Management System

The learning Management System (LMS), according to Educause Center for Analysis and Research (ECAR) is an integral part of the E-learning resources, it is the key application software necessary for maintaining, delivering and tracing e-learning system, and almost 99percent of tertiary institutions in the e-learning platform are adopting the LMS in all its programs. (Dahlstrom, Brooks & Bichsel, 2014). In a survey conducted in faculty by Dahlstrom, Brooks & Bichsel, about 87% affirmed that LMS enhances impartation of knowledge and 71% confirms that LMS also aid easy as assimilation of subject matter by students, meanwhile, it was also discovered that 83% of students use LMS for their private learning. Interestingly, the lowest level of response in the LMS is where there are interactive features. LMS is a valid tool for all round administrative processes in the tertiary system, enabling the storage of all levels of information about the programs, students, syllabus, learning content for each course, assessment and overall academic and administrative control). (Brown, Dehone & Millichap, 2015).

Concept of Marketing

The concept of marketing has evolved from the era of development of products to the need of satisfying customers profitably. (Schultz, 1993). This involves the application of strategic balancing of the ‘marketing mix‘4p‘s (Product, Price, Place and Promotion) as a _road map‘ on how to focus the whole effort of product development on customer satisfaction. Marketing strategist must ensure that product quality has no substitute, since competition will certainly make use the interplay of demand and supply to ascertain the exact price for any given product, Price is the most sensitive variable in the marketing mix; in fixing prices for products, marketing professionals should consider fixing an optimal price that will satisfy the customer as well as guarantee the entity continuity in business, Place is also a very significant variable in the sense that, the production process is incomplete until product services gets to the final consumer and finally, effective and appropriate promotional tools must be adopted where necessary to achieve the ultimate aim of customer satisfaction. (Yilmaz, 2005).

Available global statistics for higher education has proven that, the population of both traditional face-to face and E-learning methods of education for youths between the age bracket of 17 -24 globally is about 7% when compared to developed societies like Canada (99,8%), U.S.A (81%) and France (50%), hence other societies have serious challenges catering for the dynamic growth in population especially in Asia, Africa and Latin America (Kuanr, 2007), hence the advancement in technology has provided an opportunity to provide qualitative education to these youthful population through E-learning. The stem the tide of competition in education at higher education level, management of institutions should make a swift departure from mass marketing adopt long term relationship marketing strategy to ensure optimal maximization of their large student population. (Eshiett, 2019: Demiray & Server, 2009 and Shaik, 2005).

Another strategic tool required in marketing this product is word-of-mouth (WOM), in this concept, product quality will advertise itself through referrals by current customers. (Hitch, L. P., & MacBrayne, P. 2003 and Kliatchko 2005). IMC is also concept that must have a robust

feedback and monitoring process over a period of time; by enhancing the development of both the theoretical and practical aspect of the product. (Cornellisen & Lock 2000 and Swain 2004). Other researchers have also suggested that IMC should be implemented based on cross cultural tenets; because the perception of people as regards acquisition and adoption of new technology varies, hence the need for the creation of unique digital content that suits each country. (Eshiett & Eshiett, 2020; Kitchen et al. 2004; Kim et al. 2004; Kallmeyer & Abratt, 2001; Schultz & Kitchen 1997).

Effective marketing of E-learning resources requires the adoption of the basic elements of Integrated Marketing Communication (IMC), as a tool for building relationship between the service providers, management of institutions and students as customers. Marketing strategists should be able to brand E-learning resources to attract the attention of its customers and prospects (Shaik, 2005 and Kitchen & Sever, 2008). Another strategic tool required in marketing this product is word-of-mouth (WOM), in this concept, product quality will advertise itself through referrals by current customers. (Hitch, L. P., & MacBrayne, P. 2003 and Kliatchko 2005). IMC is also concept that must have a robust feedback and monitoring process over a period of time; by enhancing the development of both the theoretical and practical aspect of the product. (Cornellisen & Lock 2000 and Swain 2004). Other researchers have also suggested that IMC should be implemented based on cross cultural tenets; because the perception of people as regards acquisition and adoption of new technology varies, hence the need for the creation of unique digital content that suits each country. (Eshiett & Eshiett, 2020; Kitchen, Schultz, Kim & Han,.2004; Kim et al. 2004; Kallmeyer & Abratt, 2001; and Schultz & Kitchen 1997).

Coronavirus Pandemic

Corona Virus pandemic is an ongoing ubiquitous disease with its devastating effects on human society. COVID-19 was coined out from the its name Corona Virus by World Health Organization (WHO), as a _Public Health Emergency of International Concern (Berkeley, 2020 & Adhanom, 2020). COVID-19 is a very contagious disease which spreads easily by; personal contacts, cough, sneezing, breathing and infected surfaces. Various scientifically recommended measures to prevent the spread of the diseases are as follows; where cases are confirmed, the patients have to be isolated for medical attention, thorough contact tracing should be made on whoever the patient came in contact with to ensure that such persons also self-isolate from the public.(Smith, Thomas, Snoswell, Haydon, Mehrotra, Clemensen & Caffery, 2020; Ohannessian, Duong & Odone, 2020; Keshvardoost, Bahaadinbeigy &; Fatehi, 2020 & Ingram & Ward, 2020).

The most common diagnosis of COVID-19 is done by obtaining samples from the nasal path or saliva from the mouth or blood samples for test, results from the test are made available based on WHO published protocols and guidelines on how to mitigate the spread of Corona Virus. (Brueck, 2020, Anderson, Heesterbeek, Klinkenberg & Hollingsworth, 2020. Qualls, Levitt, Kanade, Wright-Jegede, Dopson & Biggerstaff et al. 2017 & U.S. Centers for Disease Control and Prevention (CDC), 2020). Additionally, this pandemic is also preventable with same protocols and guidelines on how best to mitigate the spread of this disease, scientifically recommended measures to prevent the spread of the diseases are as follows; where cases are confirmed, the patients have to be isolated for medical attention, thorough contact tracing should be made on whoever the patient came in contact with to ensure that such persons also self-isolate from the public.(Smith, Thomas, Snoswell, Haydon, Mehrotra, Clemensen & Caffery, 2020; Ohannessian, Duong & Odone, 2020; Keshvardoost, Bahaadinbeigy &; Fatehi, 2020 & Ingram & Ward, 2020). Other preventive procedures are; the need to wear face mask in public places, constant washing of hands whenever there is contact and use of alcohol-based hand sanitizers and social distancing in crowded places. (European Centre for Disease Prevention and Control (2020).

Meanwhile, stakeholders in collaboration with WHO have been working assiduously on a more sustainable measure on how to tackle this pandemic which is the production of a clinically acceptable vaccine, Clinical researches are ongoing at various phases in lined with who program, some medical research collaborations between the duo of BioNTech and Pfizer made some breakthroughs with their medical trials resulting in the discovery of Tozinameran vaccine to be manufactured and marketed by in November, 2020 (Thomas, LaFraniere, Weiland, Goodnough & Haberman, 2020; Campbell, 2020 & European Commission, 2020). The effective rate of this medication has resulted in various countries making orders for the procurement of the vaccination for its citizens. As at the close of December, 2020, countries across the globe have drawn up programs for the vaccination of its citizens against the COVD-19 pandemic. It is quite obstinate to state at this point that, as at the time of conducting this study, apart from 100,000 doses sent to Nigeria on WHO affiliate arrangement for developing countries, the nation is yet to make appropriate arrangement for the procurement of the vaccine.

Theoretical Framework

Sustainability Theory

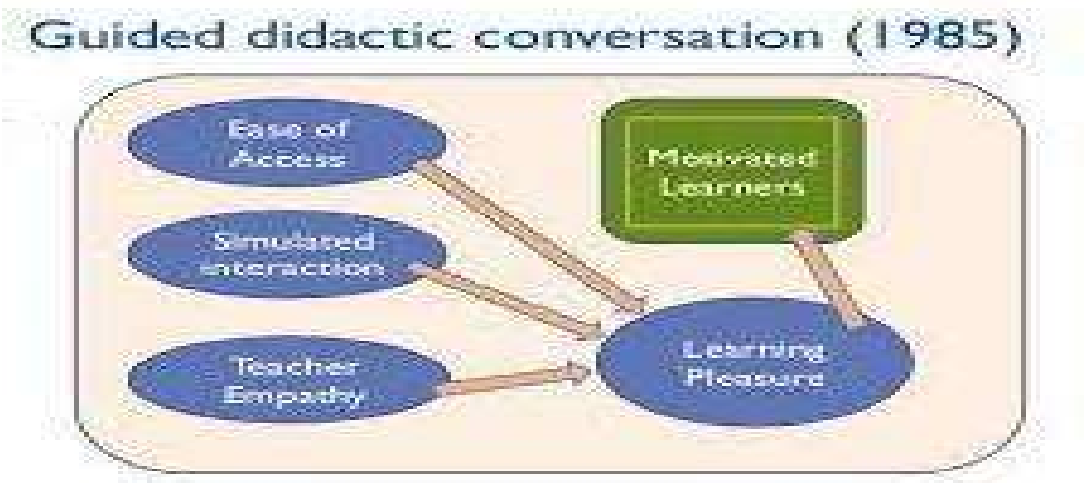
E- learning theory has its premise from the cognitive load theory as propounded by Richard E. Mayer, John Sweller, and Roxana Moreno, with valid tested and affirm field experiments on scientific literature and facts on the application of multimedia instructional representations and concepts that could aid learning constructively. (Mayer & Moreno, 2003; Moreno & Mayer, 2007; and Clark & Mayer, 2011), A greater percentage of these experiments were undertaken using university students to affirm the validity of these field experiments as it relates to distant learning. (Chang & Yang, 2010; and Harskamp, Mayer & Suhre, 2007). The perceived dichotomy between classical instructional model used in the traditional classroom environment, made possible the introduction of models by educational theorist such as Borje Holmberg to assess the underlying assumptions in that could be applicable in distant learning. The theoretical basis for the effective adaptation of distance learning is established in these four theoretical concepts of; i) transactional distance, ii) interaction, iii) learner control, and iv) social presence. hence Borje theory is adapted on the interaction concept premise; the theory of interaction and communication Borje, (1985).

Borje Holmberg Theory of Interaction and Communication

The model that underpins this study is the Borje Homberg theory of interaction and communication which is divided into six steps as listed below:

- Guided Didactic Interaction: Fig 1 below shows the process involved in creating dialogue by meaningfully engaging students involved in distant learning, ensuring that effective communication strategies is entrenched in the learning process, the communication process must show some level of empathy, communication should be enabled in simulated manner, students must be motivated to learn and an instructional process conducted effectively b the teacher. (Holmberh, 1985)

Fig 1; Borje Holmberg Guided Didactic Interaction



- Interaction Mediated Communication: This process involves the effective exchange of ideas, making provision for question and answers, Effective teaching of students, perception of anticipated cooperation by the audience, creating a sense of belonging in the part of the students. mediating amongst parties where decision making is required. (Holmberh, 1985).
- Guided Didactic Conversation: Motivation of students to learn, creating opportunity for students to learn with pleasure, Ease of access to the platform, showing empathy in relationship with the learners
- Holmberg Broadened Theory of Distance Education: Fig 2; explains the possibility of having a non-blended communication due to diversity in culture, language, status and race, accommodating various kind of learners, encourage self-determination, contributing to community social responsibility, creating opportunity for all-round learning and expand the basis to accommodate more learning opportunities by creating different modes of learning, incorporating some elements of industrialization in learning such as mechanical devices, electronic processing, mass communication (Holmberg, 1985).

Fig 2. Holmberg Broadened Theory of Distance Education



- Holmberg Broadened Theory of Distance Education – Characteristics central to distance Education: this process involves creating opportunity for interpersonal relationship, learners having pleasure in studying, feelings of empathy amongst all stakeholders, motivating the learners, having a strong sense of belonging, involve students in making decisions that affect them, using discussion method of teaching in imparting knowledge, flexible and friendly administrative structure, processes and friendly administrative staff.

The foregoing is the theory by Borje Holmberg which has listed the various steps in the theory that must be dedicatedly followed for the purpose of establishing a sustainable E-learning resource base for the growth and development of tertiary education.

Methodology

The study adopted the descriptive and cross-sectional online survey technique; structured questionnaires were developed and administered to the respondents which were students, instructors and back-office staff from University of Lagos; who are familiar with the peculiarities of an E-learning environment. The research instruments were subjected to thorough scrutiny by professionals and expert to affirm the validity and reliability of the data collected; also, to ensure that it was in line with standards. The study also ascertains the validity and reliability based on the response from the respondents via the administered research instruments to resolve all highlighted issues.

Data collected from respondents were collated and the outcome showed that the total number of administered questionnaires 136 which represented the population of the study, the breakdown indicates that the number of valid questionnaires that were actually returned by respondents for collation and analysis were 126(92.80%). Questionnaires that were not returned at all by respondents were 3(2.20%). Also, the total number of questionnaires that were actually returned but were not useful for the study due to mutilation, ineligibility and distortion were 7(5.00%). After due collation, the data were analyzed and interpreted using Pearson correlation statistical technique to confirm the interrelationship between the variables, while factor analysis were deployed to rotate and interpret the outcome of the study.

Hypothesis One:

Collaborative engagements have no effect on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era.

Table 2: Correlations

		E-learning	Collaborative Engagement
E-learning	Pearson Correlation	1.000	.875
	Sig. (2-tailed)		.000
	N	126	126
Collaborative Engagement	Pearson Correlation	.875	1.000
	Sig. (2-tailed)	.000	
	N	126	126

**. Correlation is significant at the 0.01 level (2-tailed).

The outcome of the analysis in Table 2 above revealed that there is a relationship between the variable using Pearson Correlations Technique represented by r = .875, based on the correlations result, the study affirms that there is a positive interconnection between E-learning and collaborative engagements on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era. The table also revealed that N which represent the valid sample used for the study was 126. In summary, the result of the study could be expressed thus; [r=.875, n=126, p<.0005].

Hypothesis Two:

Increased funding does not affect sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era.

Table 3: Correlations

		E-learning	Increased Funding
E-learning	Pearson Correlation	1.000	.769
	Sig. (2-tailed)		.000
	N	126	126
Increased Funding	I	.769	1.000
	Sig. (2-tailed)	.000	
	N	126	126

**. Correlation is significant at the 0.01 level (2-tailed).

The outcome of the analysis in Table 3 above revealed that relationship between the variable using Pearson Correlations Technique represented by r = .759, based on the correlations result, the study affirms that there is a positive interrelationship between E-learning and increased funding Increased funding does not affect sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era. The table also revealed that N which represent the valid sample used for the study was 126 In summary, the result of the study could be expressed thus; [r=.769, n=126, p<.0005].

Hypothesis Three:

Negative perception has no significant effect on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era

Table 4: Correlations

		E-learning	Negative Perception
E-learning	Pearson Correlation	1.000	.907
	Sig. (2-tailed)		.000
	N	126	126
Negative Perception	Pearson Correlation	.907	1.000
	Sig. (2-tailed)	.000	
	N	126	126

**. Correlation is significant at the 0.01 level (2-tailed).

The outcome of the analysis in Table 4 above revealed that relationship between the variable using Pearson Correlations Technique represented by r = .907, based on the correlations result, the study affirms that there is a positive relationship between E-learning and negative perception on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era. . The table also revealed that N which

represents the valid sample used for the study was 126. In summary, the result of the study could be expressed thus; [r=.907, n=126, p<.0005].

Discussion of Findings

The study discussion of findings is based on the objectives of the study and the outcome of the study for hypotheses one which revealed in table 1 that: there is a significant relationship between E-learning and collaborative engagements on sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era., the theory of interaction and communication theory which explains that Guided didactic conversation (Borje, 1985) Motivated Learners Learning Pleasure Ease of Access Teacher Empathy Simulated interaction.

The objective of the study for findings for hypothesis two reveals that there is an outstanding interconnection between E-learning resource development marketing in Nigerian University in a post COVID-19 era, based on the need to procure, and maintain a robust infrastructural facilities base that could anchor a robust and sustainable E-learning resource in tertiary institutions. The discussions for the study objective in hypotheses three is based on the affirmed positive relationship between Negative perception about E-learning and sustainable development and marketing of E-Learning resources in Nigerian Universities in a post COVID -19 pandemic era. This perception is captured in (Borje, 1985) –Interaction Mediated Communication; Exchange of ideas questions answers on argument, Mediated Communication Perception of cooperation; Perception of cooperation Feelings of belonging; Mediated Communication Participation in decision making Effective Teaching Student Learning‘.

From the foregoing, the successful adaptation and development of E-learning resources in Nigeria lies in the ability of the marketing strategist to create a robust enlightenment of the major stakeholders in the Nigerian University system through collaborative engagement, encouraging decision makers on the need to increase budgetary allocations that could procure the needed resources for a robust E-learning and to reverse the negative perceptions in the areas of fears that relates to job insecurity.

Conclusion and Recommendations

The basis of conclusion of this study is based on the outcome of the discussion of findings, the study objectives highlighted three issues which include; collaborative engagement, increased funding and negative perception. The successes recorded globally during the COVID-19 pandemic by western countries educationally is basically due to the value -addition of E-learning, in Nigeria, government officials and tertiary institution management are quite disturbed on how to conduct educational activities within the framework of a safe, healthy and sustainable environment. One issue that must be thoroughly dealt with is the negative perception, it is important to note that E-learning could only add value to employee job positively, hence all stakeholders must engage on how to create a robust 21st century educational experience back by E-learning.

Moreover, Tertiary institutions should train and re-train their personnel to acquire the necessary skill that is required to effectively moderate in an E-learning system, Marketing strategist should be able to create sustainable E-learning program contents that could attract the attention of institutions and government to procure these e-learning platform, There should also be massive training of back-office staff such as; programmers, software engineers and technicians that could develop, install and maintain a sustainable E-learning resources for tertiary institutions in Nigeria.

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