



A Critical Assessment of the Effectiveness of TETFund Intervention on Multimedia Digital Learning and Computer-Based Examinations in Colleges of Education in South East Nigeria.

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ABSTRACT

TETFund has in many ways contribute to the improvement of education in Nigeria. Thus, this paper investigates the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in South East Nigeria. Two research questions guided the study. The study was carried out in all government colleges of education in Anambra and Enugu State of Nigeria. The population of the study was 1145 academic staffs and 22448 students and the total sample of 690 was drawn using Yamane's statistical formula. The data for the study were generated via a structured questionnaire distributed to staff and students of the selected colleges under study. Cronbach Alpha method was used to determine the internal consistency of the questionnaire with an overall co-efficient of 0.81. Mean was used to answer the research questions, while standard deviation was used to determine the spread of the respondents around the mean in their opinion. It was found out that there there are extent of effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria. Also, there is an agreement and disagreement on the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria. It was recommended that there is need to train the lecturers and the students on the effective use and implementation on the curriculum to achieve the objectives and aims of TETFund in enhancing the productivity of the use of multimedia in teaching. Also, government should engage adequate and qualified personnel in the use of the multimedia equipment and also establish computer education programme in colleges of education

Key words: Colleges of Education, Computer-Based Examinations, Digital Learning, Multimedia, TETFund Intervention

Introduction

Examinations have been statutorily positioned in Nigeria as an avenue for the assessment of learner understanding, attainment, and level of competence to display academic attainment after a given period of a student's exposure to learning experiences. Thus, the most widely used means of assessing this learning and capability of students is to conduct examination. Examination is an important part of the teaching and learning process of education that allows lecturers to evaluate their students after teaching (Usman, & Olaleye, 2022). Examination is however used to measure the strength and weakness of teaching and learning for both the lecturers and students. Also, to know the extent to which course objectives are achieved in other to improve their ability (Abdulkareem, & Nathan, 2018, Bassey, 2020). Nwoke, Osuji, and Agi (2017) also posited that examinations constitute the process of assessing the understanding, knowledge, and academic ability of an individual within a given period.

However, examination in a traditional way is a formal method which is generally common and administered through printed questions to which students are allowed to answer in written form within a stipulated time to a previously unseen questions that is set in advance and done in designated examination centres with proper invigilation that prevents communication among students, any notes or written materials (Omemu, 2015). Although, In Nigeria, there has been a growing concern about the conduct, authenticity, and reliability of examinations, especially in Nigerian colleges of education and other institutions of higher learning (Burns, 2018). Fortunately, there was an introduction to Information and Communication Technology (ICT) to educational systems by the help of TETFund. Before now, inadequate fund to conduct research and other were problems confronting the educational sector such as deteriorating educational infrastructure and the falling standard of education. So, educational sector in Nigeria went down a slope. Government established the Tertiary Education Trust Fund (TETFund) by an act of the National Assembly in June 2011. This act replaced the Education Tax Fund (ETF) Act Cap. E4 laws of the Federation of Nigeria 2004 and Education Tax Fund (Amendment) Act No 17, 2003. The fund was set up to administer and disburse to the Federal and State tertiary educational institutions in Nigeria. The main source of income available to the fund is the 2% tax paid from the profit-making companies registered in Nigeria. In the distribution of the fund, 41 per cent goes to the Universities, 30 per cent to the Polytechnics while 29 per cent goes to Colleges of Education (TETFund, 2017). TETFund interventions in this study is anchored on multimedia digital learning and computer-based examination.

Computer Based Examination (CBE) can be described as the modern way of conducting examination through the use of computer hardware and software to test students on lesson previously taught. It could consist of theory where the students are to write using the keyboard and multiple-choice questions in objective formats. Learners read through a displayed question on screen and expected to select the correct option from a list of displayed options (Usman, & Olaleye, 2022). At the back end of the CBT customized software, the teacher/tutor has the opportunity to select the correct option and determine allotted point upon which is automatically used to assess the learner's work on submission and this makes it possible for the learner to immediately see his/her score in the test (Burns, 2018).

However, NCCE, (2012) noted that there are multi-media microteaching laboratories in Colleges of Education in Nigeria which are equipped with modern multimedia digital facilities and Multimedia Monitoring System; there are projectors, video equipment, television and Multimedia classrooms which can record and playback the teaching processes. And there are also many other software and hardware instructional materials. Micro-teaching is one of the basic compulsory courses with the code (Educ. 213) taken by the students before they graduate from the Colleges of Education. However, the students who learn through multimedia digital learning find it difficult to make use of the instruments and material effectively and efficiently in which at present, traditional classroom teachers/lecturers are supposed to be moving to online components of their teaching, and so too were many print-based distance education operations trying to effect changes in the most current digital scenario that resolves around digital learning.

Thus, the role of TETFund intervention in providing the necessary digital assistance in the area of tertiary education multimedia digital learning and computer base tests has reduced the incidences and loopholes found in traditional educational settings. Computer and related technologies provide that powerful tool to encounter the challenges of designing and implementing assessments modes that go beyond the conventional practices and facilitate accessing a widely sources of information, cognitive skills and knowledge (Sonntag, Sinacore, McNulty2011). Hence, technology has transformed educational methodologies, prompting institutions to embrace innovative approaches such as multimedia digital learning and computer-based examinations. In this context, the Tertiary Education Trust Fund (TETFund) in Nigeria has intervened to enhance the technological infrastructure of Colleges of Education. Therefore, it is against this background that the researcher wants to critically assess of the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in southeast Nigeria.

Statement of the Problem

The traditional education system in Nigeria which is mainly physical structure and Paper-based test (PBT) is characterized by different forms of examination malpractices such as bringing in unauthorized materials, writing on currency notes and identity cards, spying on other candidates in the examination hall, substitution of answer sheets and change of examination scores or grades. Others include; impersonation, leaking of questions to students before the examinations, connivance with supervisors and school authorities to cheat, writing on their laps, especially by female candidates, and so on (Abubakar & Adebayo, 2014). The challenges also include low-capacity examination venues, inadequate invigilators, inadequate examination materials, the omission of students' results, and human error(s) during the marking/grading process (Fagbola, Adigun & Oke, 2013). It was for these reasons that multimedia digital learning and computer-based was introduced in the tertiary institution through TETFund interventions to rescue the above challenges however this digital learning is not straightforward in terms of precise definition. Some Educational Institutions in some situations claimed that they are offering online courses when all they have succeeded doing is merely adding online component to what is basically face-to-face coursework management, print-based or broadcast-based courses without inherent digital management to reflect what actually characterized Digital E-Learning in an authentic context. Although, even courses designed from the beginning as online courses will often contain printed readings, either in the form of required textbooks or as collections of printed articles distributed to students by mail, (Bates,2005). The onus of the study lies on assessing the extent of the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria.

Purpose of the study

This purpose of the study is to determine the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria, Anambra and Enugu State Experience. Specifically, this study would tend to:

1. Determine the extent of the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria, Anambra and Enugu State Experience
2. Determine the nature of the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria, Anambra and Enugu State Experience.

Research Questions

The following research questions would guide the study:

1. To what extent is the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria?
2. What are the nature of the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria?

Project Impact

While strengthening the knowledge base in this field, this study would assist educators, curriculum planners, policy makers, text book writers, and indeed, all stakeholders in education, to re-examine instructional practices, curriculum especially in these post-modern educational challenges.

Literature Review

Related literature to the key concepts in this study would be reviewed.

TETFund Interventions

Tertiary Education Trust Fund (TETFund) is a body set up by the Federal Government of Nigeria ostensibly to arrest the rot and deterioration in the educational infrastructure occasioned by long period of neglect and very poor resource allocation. Tertiary Education Trust Fund Former Education Trust Fund (ETF) was established as an Intervention Agency by Education Tax Act No. 7 of 1993 (and subsequently amended in 1998). This law empowered the then ETF to intervene at all levels of education (Primary, Secondary and Tertiary) in public institutions. In 2011, Education Trust Fund, ETF was renamed TETFund by the ETF Act No. 16 and refocused to intervene in only public tertiary institutions (Universities, Polytechnics and Colleges of Education) for maximum impact.

Tertiary Education Trust Fund Act, 2011 imposes a two percent (2%) Education Tax on the profit of all registered companies operating in Nigeria. Tertiary Education Trust Fund is charged with the responsibility to manage, disburse and monitor the education tax to public tertiary institutions in Nigeria. Tertiary Education Trust Fund administers the tax imposed by the act and disburses the amount to tertiary educational institutions at Federal and State levels. Specifically, TETFund's cardinal objective is to provide the badly needed funds to support tertiary education, and provide scholarships and grants for staff to enhance the productivity and quality of higher education. TETFund interventions are anchored on the following areas: Normal Intervention; Library Intervention; Research grant; Academic Staff Training & Development; Publication of Journals; Manuscript Development; and Conference Attendance.

Multimedia Digital Learning

Smartest Learning design within the context of students' use of technology at their fingertips is to provide the perception of ubiquitous access to multimedia-relevant information that support learning activities. This does not only depend on the multimedia software availability, hardware support and life ware manageability, but on how flexible, and articulated the online training is conjured. The Smartest Learning Environments are Internet of Things-based learning solutions, which are essentially integrated into the digital workflow and E-Learning educational customizable platforms, (Castro, 2018). Smart digital learning environments are usually physical environments enriched with context-aware digital devices to improve an accelerate learning activities with minimal human coordination. The Smartest Digital Learning Environment often employs Artificial Intelligence (AI), Machine Learning and the IOTs, which is cascaded as a bundle of technologies that connects different types of Information Technology (IT) ranging from Radio Frequency Identification (RFID) to data analytics and virtual reality (VR), (Fichman, Dos Santos, & Zheng, 2014).

The Smartest digital learning environments to some degree of maturity required a powerful recommendation system which is a subclass of information filtering system that seeks to predict the ranking or preference a user would give as a response, (Mohammadi, Rahmani, Darwesh, & Sahafi, 2019). Multimedia Digital Learning (DL) in its fundamental approach is any system of educational activity that is accompanied and supported by twenty first century Multimedia technology coupled with the instructional demonstration that superlatively utilized technology for effective pedagogy. However, Digital Learning encompasses the application of a broad continuum of educational practices which often point in the direction of blended and virtual learning, (Brown, 2016). Digital Learning is occasionally misperceived with online learning or e-learning, although, digital learning incorporates the aforementioned concepts in its existence. A digital learning approach may essentially include any or a combination of any of the following: adaptive learning, blended learning, classroom technologies, e-textbooks, learning analytics, mobile learning (e.g., Mobile Phones, Laptops, Computers, iPads), personalized learning, online learning (or e-learning), open educational resources (OERs), technology-enhanced teaching and learning, virtual reality, augmented reality. The use of Mobile Smart Technologies, Customized Android TV, and Customized Android Educational Apps all have provided advantageous opportunities, flexibility and portability of traveling along and still enjoy the facilities of Digital Learning.

The Pedagogies that incorporate digital learning makes it to enhance the learning experience rather than replace the traditional educational methodology, (Shih, 2007). E-Learning Education usually are a form of learning utilizing electronic technologies to access educational curriculum outside of the traditional classroom setting, (Al-Qahtani & Higgins, 2013). E-Learning Education are coursework usually delivered via the internet to remote location other than the classroom arrangement where the educator (professor, lecturer, instructor, teacher) are teaching. It is not categorized as the courses administered via the DVD or CD-ROM, Video Tape or over a Television channel. E-Learning Education is essentially interactive for communicating with the teachers, professors and other students in the class who are participating in the E-Learning management. In most scenario, E-Learning Education are delivered live through an electronically synthesized arrangement in which participants can raise hand and interact in real-time synchronism while at some point it can be a lecture that has been rerecorded. Usually, there is an educator (teacher, lecturer or professor) interacting or communicating with the participants and equally grading the assignments, tests and entire activities that characterized the entire coursework management. Distance Learning Education (DLE) are completely distance learning or a combination of distance learning and some traditional classroom teaching often regarded as hybrid

or blended learning, (Babb, Stewart, & Johnson, 2010). Several open online courses are large-scale interactive participation through the World Wide Web and other peculiar network technologies recently among the educational modes in distance education management, (Clarke, 2013).

The Internet of Things technology have enabled many forms of distance learning through open educational resources and facilities such as e-learning, distributed learning, m-learning, online learning, virtual classroom is used synonymously with the concept of distance education. The distance education technologies are essentially categorized into two modes of delivery in the perspective of synchronous learning and asynchronous learning, (Beyth & Marom, Saporta, & Caspi, 2005). In synchronous distance learning education, all participants are uniformly present at the time of coursework administration, resembling traditional classroom teaching methodology even though the participants are hosted remotely. However, this requires a timetable to enable the participant to be rightfully organized. Usually, Web conferencing, videoconferencing, educational television, instructional television, internet radio, live streaming, telephone and web-based VoIP are exclusively synchronous technology, (Burns, 2018).

Web conferencing software such as Zoom helps to expedite meetings in distance learning activities and usually contain additional interaction tools such as text chat, polls and hand raising. In asynchronous learning, participants access course materials flexibly on their own schedules without time synchronization, (Young, Bailey, Guptill, Thorp, & Thomas, 2014). Participants or Students are not necessarily required to be assembled together at the same time for classwork activities. Mail correspondence, discussion forum, blogs, webcast which are among the oldest form of distance education are asynchronous delivery technology likewise message board forums, e-mail tools, video and audio recordings, print materials, voicemail and fax. Distance learning will equally enable students and participants who are unable to attend a traditional classroom setting due to unavoidable circumstances (disability or illness) such that hinder mobility to be actively engaged in the training activities.

Computer Based Examination (CBE)

Computer Based Examination (CBE) is defined as a form of Information Communication Technology (CBE) for test administration or assessment whereby examinee responses are electronically coded, assessed and recorded, with the prompt publication of results (Okoye, 2019). Suleiman and Nachandiya (2018) defined Computer based testing as tests and assessments conducted through the use of organized systems on computers. Computer based examinations can also be referred to as any form of assessment in which the computer is an integral part of question paper delivery, responses storage, marking of responses or reporting of results from a test or exercise (Olutunu, 2018). Therefore, computer-based examination is the process of administering and answering examination questions through the use of computers. Examinations administered through CBE mostly are objective type questions. With the use of the CBE, examinations are conducted in a more serene environment, communication and distraction among candidates are reduced, there is an easy and fast response to questions as well as close monitoring of candidates by invigilators. Also, Nwoke et al (2017) observed that the use of computer-based examination (CBE) as against the pencil and paper mode has proved very effective in the reduction of examination malpractices in public examinations.

College of Education

Today, there are 57 Colleges of Education in Nigerian with uniform minimum standards as provided by the National Commission for Colleges of Education (NCCE). Since the establishment of the National Commission for Colleges of Education in Nigeria, the Academic Programmes of all the Colleges of Education in Nigeria have been accredited from time to time as stipulated in section 5 (c) and (d) of Decree 3 of 1989 that set up the Commission. The Decree states that; the Commission shall: (c) Lay down minimum standards for all programmes of teacher education and accredit their certificates and other academic awards, (d) Approve guidelines setting out criteria for the accreditation of all Colleges of Education in Nigeria.

The future of Colleges of Education in Nigeria is quite bright if they are properly equipped, staffed and funded. If that is done, they will be granted the expanded responsibility of producing B.Ed degree teachers. At the moment, only few Colleges of Education in Nigeria have been granted the status of degree-awarding institutions, due to inadequate facilities, staffing and funding. The junior secondary school system, which emphasizes the acquisition of vocational and technical knowledge within the comprehensive education programme, are expected to be staffed almost exclusively by N.C.E. teachers. Only very few Colleges of education in Nigeria offer vocational and technical courses at the moment due to lack of equipment, high cost of fittings and the maintenance of technical workshops. The Federal and State Government equipped the technical workshops of secondary schools but left out the Colleges of Education that are expected to produce the teachers that will make use of them for teaching-learning purposes. There is currently an overproduction of N.C.E. teachers in arts, humanities and social sciences. The Nigerian Education System according to Nwangwu (1988) requires a heavy input of teachers for the natural sciences and mathematics, yet it is these vital areas that have the lowest enrolment in the Colleges of Education in Nigeria. With N.C.E. as the minimum teaching qualification as provided in National Policy on Education (1981), it is our hope and expectation that the Colleges of Education in Nigeria will be equipped, staffed and funded to successfully perform their onerous responsibility to the education system, the society and posterity.

Teaching/Learning Process

Teaching and learning process can be defined as a transformation process of knowledge from teachers to students. It is referred as the combination of various elements within the process where an educator identifies and establishes the learning objectives and develop teaching resources and implement the teaching and learning strategy. On the other hand, learning is a cardinal factor that a teacher must consider while teaching students.

Teaching learning process consists of four basic elements (a) Assessment. (b) Planning. (c) Implementation. (d)evaluation. It is a method for monitoring and judging the overall quality of learning or teaching based on objective, data and scientific criteria.

Methodology

The study adopted a descriptive survey design. According to Osuala (2005) survey design is appropriate for studies dealing with people's opinions, beliefs, attitudes, motivation and behaviours to measure TETFund intervention on multimedia digital learning and computer-based examinations. The study was conducted from government colleges of education in Anambra and Enugu state. The population comprises of the academic staff and students of the federal and state government colleges of education in Anambra and Enugu state. The government colleges of education in Anambra and Enugu state are the Federal College of Education, Eha-Amufu, Enugu, Enugu State College of Education (Tech), Enugu, Nwafor Orizu College of Education, Nsugbe, Anambra state, and Federal College of Education (Tech), Umuze, Anambra state.

Table 3.1 Population of study

N/B	Name of college	Number of Academic staff	Number of students
1	Federal College of Education, Eha-Amufu, Enugu	263	6855
2	Enugu State College of Education (T), Enugu	291	4118
3	Nwafor Orizu College of Education, Nsugbe, Anambra, State	216	3671
4	Federal College of Education (T), Umuze, Anambra, State	375	7804
Total		1145	22448

The population for the study is 22448 which is too large; hence Taro Yamane (1964) was used to obtain the sample size. Yamane's statistical formula for finite sample size determination is as follows:

$$n = \frac{N}{1 + (Ne^2)}$$

Students

$$n = \frac{22448}{1 + (22448) \times (0.05)^2} = \frac{22448}{1 + 22448 \times 0.0025} = \frac{22448}{1 + 56.12} = \frac{22448}{57.12} = 393$$

Academic Staffs

$$n = \frac{1145}{1 + (1145) \times (0.05)^2} = \frac{1145}{1 + 1145 \times 0.0025} = \frac{1145}{1 + 2.86} = \frac{1145}{3.86} = 297$$

A sample of 297 Academic staffs and 393 students which makes up 690 is sampled from the government colleges of education in Anambra and Enugu state. A developed questionnaire was used for the study. The items on the questionnaire were structured on a four-point scale of Strongly Agree (SA), Agree (A), Disagree, (D) and Strongly Disagree (SD). Copies of the questionnaire titled the Effectiveness of Multimedia Digital Learning and Computer-Based Examination on Colleges of Education' (EMDLCBE) were validated by 3 academic experts from the colleges of education and the questionnaires were distributed to the respondent with the help of 5 research assistance. The entire 690 questionnaire were timely completed and used for the study. Cronbach Alpha method was used to obtain and considered the internal consistency of the items, with an overall co-efficient of 0.81. The research question was answered using mean while t-test was used for hypothesis with the use of a Statistical Model of Impact Measuring, a combination of multivariate regression methods and statistical inference was used in analysing data generated from the study. Data analysis was carried out on SPSS 20. Only items with mean ratings of 2.50 and above were accepted as measures to understand the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations.

Findings

Research Question 1: To what extent is the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria?

Table 1: Mean rating of the respondent on the extent of effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria

N/B		\bar{X}	SD	Remark
1	Multimedia tools, such as smart classrooms and e-learning platforms are extremely accessible, as a result of TETFund interventions	2.85	0.74	Accepted
2	Academic staff fully Integrated multimedia tools into their teaching methods after TETFund interventions	1.24	0.39	Rejected
3	Computer-based examinations have and can improved the security and integrity of the examination process	3.48	0.51	Accepted
4	TETFund intervention has significantly improved the availability of multimedia digital learning resources in the College	3.85	1.03	Accepted
5	infrastructure upgraded through TETFund has effectively supported the integration of multimedia tools into the teaching and learning processes in the College	2.55	1.09	Accepted
6	TETFund intervention has positively impacted the accessibility of computer-based examination facilities the College	3.48	0.47	Accepted
7	Professional development provided by TETFund have adequately prepared academic staff to effectively utilize multimedia digital learning tools	2.67	0.96	Accepted
8	TETFund-supported initiatives have enhanced student engagement and participation in multimedia-enhanced learning activities in the College	2.51	1.04	Accepted
9	TETFund intervention has streamlined the process of conducting computer-based examinations, making it more efficient and reliable	3.11	1.01	Accepted
10	TETFund-supported technology infrastructure has contributed to an improved overall learning experience for students in the College	2.80	1.03	Accepted

Key: \bar{X} Mean SD (Standard deviation)

The result in table 1 revealed that multimedia tools, such as smart classrooms and e-learning platforms are extremely accessible, as a result of TETFund interventions (2.85). However, academic staff fully Integrated multimedia tools into their teaching methods after TETFund interventions was disagreed (1.24). Meanwhile, computer-based examinations have and can improve the security and integrity of the examination process (3.48). The respondents agreed that TETFund intervention has significantly improved the availability of multimedia digital learning resources in the College (3.85) and accepted that professional development provided by TETFund have adequately prepared academic staff to effectively utilize multimedia digital learning tools (2.67). Also, TETFund-supported initiatives have enhanced student engagement and participation in multimedia-enhanced learning activities in the College (2.51), and TETFund intervention have streamlined the process of conducting computer-based examinations making it more efficient and reliable (3.11). Thus, TETFund-supported technology infrastructure has contributed to an improved overall learning experience for students in the College (2.80). however In all, items 1, 3, 5, 7, 8 and 10 with mean scores of 3.48, 3.85, 2.55, 3.48, 2.67, 2.51, 3.11 and 2.80 corresponding to standard deviations of 0.74, 0.51, 1.03, 1.09, 0.47, 0.96, 1.04, 1.01, and 1.03 were accepted respectively, while item 2 was rejected with mean score of 1.24 and standard deviation of 0.39.

Research Question 2: What are the nature of the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria?

Table 2: Mean Ratings responses on the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria.

N/B		\bar{X}	SD	Remark
1	TETFund interventions have significantly improved the infrastructure for multimedia digital learning in my College	2.54	0.72	Accepted
2	TETFund intervention has improved the availability of multimedia digital learning resources in my College	1.79	0.62	Rejected
3	Adoption and integration of multimedia digital learning tools in teaching and learning processes have been enhanced as a result of TETFund interventions	1.81	0.64	Rejected
4	I frequently utilize multimedia digital learning tools provided through TETFund intervention in your teaching or learning activities	1.70	0.63	Rejected

5	Integration of multimedia digital learning enhanced the overall learning experience in my College	2.83	0.66	Accepted
6	Funding provided by TETFund has positively influenced the overall academic performance of students in computer-based examinations	3.48	0.99	Accepted
7	Am comfortable with the use of computer-based examination systems introduced through TETFund intervention	2.05	1.05	Rejected
8	TETFund intervention in my college has made Multimedia digital learning and computer-based examinations highly effective	3.55	0.94	Accepted
9	TETFund interventions have contributed to a more secure and efficient implementation of computer-based examinations	1.52	0.51	Rejected
10	TETFund interventions in my college has led to an increased preference for computer-based examinations	2.00	0.40	Rejected

Key: \bar{X} Mean SD (Standard deviation)

Table 2 above showed that TETFund interventions have significantly improved the infrastructure for multimedia digital learning in my College (2.54). The respondents disagreed that TETFund intervention has improved the availability of multimedia digital learning resources in my College (1.79) and disagreed that Adoption and integration of multimedia digital learning tools in teaching and learning processes have been enhanced as a result of TETFund interventions (1.81). The respondents also disagreed that frequently utilize multimedia digital learning tools provided through TETFund intervention in your teaching or learning activities (1.70). However, integration of multimedia digital learning enhanced the overall learning experience in my College (2.83) and funding provided by TETFund has positively influenced the overall academic performance of students in computer-based examinations (3.48) but disagreed that they are comfortable with the use of computer-based examination systems introduced through TETFund intervention, (2.05) and accepted that TETFund intervention in my college has made Multimedia digital learning and computer-based examinations highly effective (3.55). Besides, they disagreed that TETFund interventions have contributed to a more secure and efficient implementation of computer-based examinations with the sharing mean of (1.52) and TETFund interventions in my college has led to an increased preference for computer-based examinations with the sharing mean of (2.00). On the whole, items 1, 5, 6, and 8 yield a mean score of 2.54, 2.83, 3.48, and 3.55 corresponding to standard deviations of 0.72, 0.66, 0.99, and 0.94 were accepted respectively while the item 2, 3, 4, 7, 9, 10 yield a mean score of 1.79, 1.81, 1.70, 2.05, 1.52, and 2.00 corresponding to standard deviations of 0.62, 0.64, 0.63, 1.05, 0.51, and 0.40 were rejected respectively.

Discussion

There was general agreement by the respondents that there are extent of effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria. The result is not surprising that TETFund is trying to position education in the country in a way of learning through the use of multimedia which other educational institutions trying to adopt just like WAEC who is now trying to adopt the use of online exam for their students. This finding is agreement with NCCE, (2012) who noted that there are multi-media microteaching laboratories in Colleges of Education in Nigeria which are equipped with modern multimedia digital facilities and Multimedia Monitoring System; there are projectors, video equipment, television and Multimedia classrooms which can record and playback the teaching processes. And there are also many other software and hardware instructional materials. Micro-teaching is one of the basic compulsory courses with the code (Educ. 213) taken by the students before they graduate from the Colleges of Education. However, it was noted in the findings that academic staff do not fully Integrate multimedia tools into their teaching methods after TETFund interventions which will therefore make the students not to have full knowledge on the use of multimedia digital learning.

Secondly, the finding which revealed an agreement and disagreement on the effectiveness of TETFund intervention on multimedia digital learning and computer-based examinations in colleges of education in south east Nigeria. It was agreed that TETFund interventions have significantly improved the infrastructure for multimedia digital learning in the College, and the integration of multimedia digital learning has enhanced the overall learning experience in the College. They also note that TETFund has positively influenced the overall academic performance of students in computer-based examinations and that TETFund intervention in the college has made Multimedia digital learning and computer-based examinations highly effective. Thus, this finding is in line with Sonntag, Sinacore, & McNulty2011 who observed that computer and related technologies provides that powerful tool to encounter the challenges of designing and implementing assessments modes that go beyond the conventional practices and facilitate accessing a widely sources of information, cognitive skills and knowledge. Also, Castro, 2018 noted that the Smartest Learning Environments are Internet of Things-based learning solutions, which are essentially integrated into the digital workflow and E-Learning educational customizable platforms

However, they disagreed that TETFund intervention has improved the availability of multimedia digital learning resources in the College and the adoption and integration of multimedia digital learning tools in teaching and learning processes have been enhanced as a result of TETFund interventions and frequent utilize multimedia digital learning tools provided through TETFund intervention in their teaching or learning activities. The respondent disagreed that they are not comfortable with the use of computer-based examination systems introduced through TETFund intervention and this could be that the students are not properly trained before introducing the process of using it. Also, TETFund interventions have not contributed to a more secure and efficient implementations of computer-based examinations and TETFund interventions in the college have not led to an increased preference for computer-based examinations. This informed the suggestion made by Nwoke et al (2017) who observed that the use of computer-based examination

(CBE) as against the pencil and paper mode has proved very effective in the reduction of examination malpractices in public examinations, also Brown (2016) that Digital Learning encompasses the application of a broad continuum of educational practices which often point in the direction of blended and virtual learning.

Conclusion and Recommendations

Based on the findings and discussion of the study, multimedia digital learning and computer-based examinations in colleges of education has been found to be available but should be suitable for students in colleges of education. However, there is need to train the lecturers and the students on the effective use and implementation on the curriculum to achieve the objectives and aims of TETFund in enhancing the productivity of the use of multimedia in teaching. Also, government and colleges of education management should engage adequate and qualified personnel for proper use of the multimedia equipment.

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