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# Influence of Quality Assurance Strategies in Management of Learning Materials in Open and Distance Learning Institutions in South-South Nigeria

*Dr. B. Wey-Amaewhule, Dr. T. Amie-Ogan & Nweneka, C. M.*

Department of Educational Management,
Faculty of Education, Rivers State University,
Port Harcourt, Rivers State, Nigeria
**Phone No:** 08163180044, **Email:** chigonimebere@gmail.com

## ABSTRACT

This study examined Influence of Quality Assurance Strategies in Management of Learning Materials in Open and Distance Learning Institutions in South-South Nigeria. The study was guided by six objectives from which six research questions and hypotheses were derived. The study adopted a descriptive survey design with a 183 facilitator and administrators. This comprises 137 facilitators and 46 administrators in Faculties of Education of National Open University of Nigeria (NOUN) study centres in all the six states in South-South Nigeria. The sample size of the study was 183 facilitator and administrators. The entire population was taken as census without sampling due to the manageable size of the population.  The instrument for data collection was a self-designed questionnaire titled "Quality Assurance Strategies for the Management of Learning Materials in Open and Distance Learning Institutions Questionnaire". The questionnaire was validated by the researcher's supervisor and two other experts in Measurement and Evaluation. A test of internal consistency was conducted using Cronbach Alpha method to determine the reliability of the instrument. Reliability coefficients of  0.85, 0.75 and 0.77 were obtained for the various clusters of the instrument. The research questions were answered using mean and standard deviation statistics while the hypotheses were tested using z-test statistics at 0.05 level of significance. The findings of the study revealed among others that conducting of regular content reviews and establishment of standards for development of materials  enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria to a high extent. Based on the findings of the study it was recommended among others that administrators of Open and Distance Learning centres should employ the service of curriculum developers to conduct regular review of the content of learning materials for students in their centres. This way, they can be assured of the quality of these materials in meeting set instructional objectives.

Key Words: Influence, Quality Assurance, Strategies, Management, Learning Materials, Open and Distance Learning

## INTRODUCTION

In recent years, institutions everywhere in the world have become more interested in quality delivery and effective management (Edwards, 2013). Distance learning institutions are not left out of the struggle among institutions to become more effective in quality delivery and in management of resources and personnel. But effectiveness and quality delivery do not happen by chance, there are conditions that must be met before an institution is declared effective in management and in service delivery. For any distance learning institutions to be effective, it must depend on the availability and relevance of study materials whether in printed form or electronic form. Open and distance learning (ODL) institution showcases quality in its programmes and study materials since students learning is the focal point of the institution.

Quality assurance of Open and Distance Learning materials embraces, curriculum design, content and delivery processes (Beth, 2018). This study will attempt to examine how quality relates to planning of learning materials, selection of appropriate technologies as learning aids, course content development in open and distance learning institutions, course production and delivery, coordination of learning materials distribution and training of personnel for technical support in open and distance learning institutions in South-south Nigeria.

Quality is very relevant to the stability and success of Open and Distance Learning Institutions. It is one of the most discussed terms in education in general. It has been analyzed by many scholars who present quality from various viewpoints according the necessities of various institutions and scholars. The word 'quality' comes from the Latin word quails. The British Standard Institution (BSI, 1991) characterizes quality as the entirety of highlights and attributes of an item or administration that bear on its capacity to fulfill expressed or suggested needs. Greg (2015) distinguished five distinct ways to deal with basic quality: (I) It must be extraordinary (surpassing elevated expectations and passing a necessary norm); (ii) It must be reliable (displayed through 'zero imperfection' and 'getting right the initial time', making quality a culture); (iii) It has readiness for reason (meaning the item or administration

meets the expressed reason, client details and fulfillment); (iv) It has an incentive for cash (through productivity and viability); and (v) It has groundbreaking (regarding quality change).

The meaning of quality assurance varies slightly from place to place and from discipline to discipline but despite the slight variation in the meaning, all quality assurance systems share typical principles. The word 'quality' has two things. The first is the specific or fundamental element, the innate element, property or characteristic by which a thing might be distinguished or portrayed. The second alludes to the predominance or position of specific product. The possibility of value in instruction includes both these implications, and the record of the historical backdrop of the term introduced in this article (Kumar, 2014). There are two parts of value particularly in the instructive setting, these are: nature of the framework all in all and nature of what the framework offers to students. Comparable to ordinary instruction quality covers different parts of a thing or a personality.

Organizing of ODL learning materials involves classification, definition and synchronization of the various sub-processes that are important for the development of quality learning materials. Organization is involved in streamlining activities to make sure that deadlines are met. Also for there to be quality learning materials in ODL institutions, the right people who are qualified and efficient in developing learning materials have to be engaged. However, staffing involves more than recruiting qualified staff. It also involves staff training, orientation and maintenance of a favorable working space, (Henry, 2014).

The introduction of multimedia elements in learning materials has been found to enhance the management of learning materials in Open and Distance Learning (ODL) institutions. Multimedia technology allows for the delivery of educational material in various formats, which can simplify and enhance the learning experience. The use of multimedia in ODL for teacher education has brought success in designing, implementing, and evaluating the process of online delivery. Multimedia resources such as animations, videos, and photos can enhance students' understanding of complex concepts in engineering materials courses. Additionally, multimedia materials can be used to apply theoretical concepts to real environments, promoting students' learning and autonomy. The selection and combination of appropriate media types in educational materials is crucial for effective learning, and the use of multimedia technology can provide exciting opportunities for enhancing the learning experience.

Furthermore, fostering collaboration among instructors and content developers can enhance the management of learning materials in Open and Distance Learning (ODL) institutions. By working together, instructors and content developers can ensure that instructional materials are well-designed and meet the needs of learners. This collaboration can lead to the development of high-quality learning content that is based on the expertise and experience of both instructors and content developers. Additionally, collaboration can help in sharing and reusing learning content, reducing redundant work and costs. It can also support collaborative teaching activities and the gradual development of content. Furthermore, collaboration can address the limitations of network infrastructure in developing countries, ensuring that content can be shared and synchronized effectively (Kapur, 2019)

The implementation of peer reviews in Open and Distance Learning institutions can enhance the management of learning materials to a certain extent. Peer assessment activities have been found to have benefits beyond assessment, such as enhancing critical thinking and writing capabilities of students. However, the reliability and validity of peer assessment activities can be a concern, as low reliability has been observed in some studies. Peer reviewing has the potential to improve the quality of teaching and learning, but it needs to be better instructed and structured to be more helpful for students. Lack of guidance and structure in peer review assignments has been identified as a limitation, but the use of a Four-Step Model can enhance clarity, direction, and objectivity in peer reviews. Peer reviewing can provide individual feedback to students throughout the semester, but the quality of feedback can vary and some students may avoid putting effort into writing reviews .

Quality learning material is a factor that determines the effectiveness of open and distance learning programme. Hence facilitators need to ensure that learning materials for open and distance learning programme are in quality state. According to Beth (2018) any collection of materials which may be animate, inanimate, or human and non-human resources that a teacher or instructor may use in teaching to aid students in learning situations are referred to learning materials. This implies that teachers' instructional delivery are aided by the learning materials. Jodie (2017) posited that the major aim of using learning materials is to help students to achieve their goal of learning and to help the instructor achieved desired learning objectives. Ensuring the quality of learning materials for ODL programmes, there is need to evaluate, improve, maintain, supervise, assess, and inspect learning materials that are used in the programme.

## Concept of Quality Assurance

A number of terms are used to refer to ideas of improving the quality of higher education. Such words include but not limited to quality assurance, quality assessment, quality improvement and quality development (Adesina, 2016). Studies have shown that recently, scholars began to move from using "quality assurance" to using "quality management" and most recently to "total quality" which is believed to embrace quality not only in the educational field but in other fields of service that support the educational field such as human resources, infrastructures and finances. But while there may be differences in the definition of quality assurance, the main purpose of quality assurance in the educational sector and in ODL is to ensure that students benefit from a high quality and competitive education and that credentials that are awarded are recognized and respected by government and employees.

In defining quality, one faces the challenge of what really constitutes quality. Different scholars look at quality from different perspectives. But whatever the perspective, scholars generally agree that quality is made up of two components with the first being the essential character that is inherent, a property or attribute by which a thing may be identified or described and the other being the superiority or rank of particular merchandise. There are two aspects of quality in the context of education, the quality of an educational system and the quality of what it offers to students or learners (Adesina, 2016).

According to Amin (2020), quality in conventional educational system, is measured in various components which include: the standard of face-to-face instruction, infrastructure, basic amenities, social and geographical environment, professional competences, administration, programs, curriculum, teaching-learning materials, teaching and learning processes, community support to the institution, performance evaluation of the teachers, students and the system as whole. Quality can be used interchangeably with efficiency and effectiveness. The various definitions of quality reveal that quality is a complex term.

Quality assurance refers to the arranged and deliberate exercises executed in a quality framework with the goal that quality prerequisites for an item or administration will be satisfied. It is the efficient estimation, correlation with a norm, checking of cycles and a related input circle that gives mistake counteraction. This is slightly differently in relation to Quality "Control" which is centered on process yields. Two standards remembered for QA are: "Fit for reason", the item ought to be appropriate for the planned reason; and "Right first time", mix-ups ought to be wiped out (Badmus, 2017).

Quality Assurance is a crucial part of the public frameworks of advanced education around the world. It is expected that if quality assurance strategies are employed effectively, there should be a corresponding improvement on of the academic results of students of higher institutions and in the case of this research, students of Open and Distance Learning institutions. The Higher Education Quality Committee, HEQC (2004), characterizes quality assurance as a course of guaranteeing that predefined guidelines or prerequisites have been accomplished. Quality assurance is a cycle through which advanced educational institutions can learn the different administrative ways of reliably arriving at excellence. Such assurance is an important objective for the actual establishment.

Quality assurance is a comprehensive term referring to a consistent course of assessing (evaluating, checking, ensuring, keeping up with, and improving) the nature of an advanced education framework, foundations or projects. As an administrative component, quality assurance centers around both responsibility and improvement, giving data and decisions (not positioning) through a settled upon and predictable interaction and deeply grounded standards. Numerous frameworks make a qualification between inward confirmations.

To Rodrik, (2018), quality assurance is the planning and systematic execution of programmes such that set requirements or service is achieved. Olayinka further stated that quality assurance measures and compares standards, monitors processes and evaluates feedbacks with the aim of preventing errors. He posits that although some scholars use quality assurance and quality control interchangeably, but that quality assurance is slightly different from quality assurance in that while quality assurance plans and executes programs, quality control on the other hand is focused mainly on process outputs. Adesina (2016) identified to main principles of quality assurance and then listed the same measures which were identified by Amin (2020) as measures that must be taken if an ODL institution is to guarantee high standard.

## Concept of Open and Distance Learning

In defining open and distance learning, there are two key concepts that are important: 'openness' and 'distance'; the concept of openness in this context refers to ease of accessibility and convenience. In the other hand, distance refers to accessing knowledge without necessarily converging at a center (Bidemi, 2017). Meaning that the open and distance system of learning offers education without borders. In simple terms, within the context of this work, distance refers to closing the spatial gap between teachers and learners through the use of modern communication technologies. The Nigerian University Commission (NUC) has an elaborate guideline for the operations for open and distant learning universities. The most recent NUC guideline for open and distance learning institutions in Nigeria is the revised version of 2009 (Adesina, 2016).). In the open and distance learning system, students are not required to attend classes or have face to face interaction with tutor, unless there are compelling reasons such as examinations, periodic facilitation and practicum to justify the students physical presence.

Similarly, the United States Distance Learning Association (USDLA 1996) describe open distance learning as the process in which knowledge and skills are is acquired particularly, through mediated information/instruction, broad range of technological tools and other forms of learning at distance. Adesina (2016) further adds that, the concept of openness in ODL implies removal of all bottleneck and stringent conditions to learners' means to acquiring education. In the same vein, distance education is defined as a set of teaching and learning strategies or educational methods that can be used to overcome spatial separation between educators and students. To the U.S Office of Technology Assessment, distance learning viewed as a process of linking teachers and students in several geographic locations via technology that allows for interaction (Amie-Ogan, Edo, & Elenwo 2022).

Consequently, in the online page of the Western Carolina University (1995), open and distance learning is described as the delivery of instruction to the right group of people at the right time and in the right place. Thus, implies that educators and learners may be separated by time, distance or both but their engagement on educational exchange is efficiently carry out. Similarly, open distance learning practice has been described as the provision of education by mode other than the conventional face-to-face method whose goals are similar to, and just as noble and practical as those of on campus full time. Other scholars have described online distance learning (ODL) as a system characterised by physical separation between the teachers and the learners, in which instruction is delivered through variety of media technology including print and other information communication technologies to learners who may have missed the opportunity earlier on life or have further been denied the traditional face-to-face formal education due to socio-economic, career, family or other circumstances (Jegede, 2019).

There are many ways to define the term 'Open and Distance Learning' (ODL). Andreas (2016) defined ODL as the sort of instruction that happens outside the traditional educational system. It is conferred without essentially having individual connection with understudies or students. Along these lines, Spring (2017) defined distance learning as 'an instructive system of learning where the parties participating in the teaching and learning are separated by distance

in space and/or time.  Spring (2017) posited that ODL is exactly the same thing and share the same objectives with: home review and correspondence study through which platform, those far off or nearby can receive academic instructions without face-to-face contact as in traditional educational systems.

According to UNESCO (2002), ODL is one of the most quickly developing fields of schooling, and its likely effect on all instruction conveyance frameworks has been incredibly complemented through the improvement of Internet-based data advancements, and specifically the World Wide Web introducing approaches that focus on opening admittance to all as well as adapting the teaching and learning to the peculiar situations of. Open and distance learning implies the conveyance of valuable academic knowledge to advantageous spots of all interested students at their own convenient time. According to Norman (2011), in the ODL system, both the educator and the learner do not need to border about physical availability in class as with the traditional educational system.

The Federal Ministry of Education (2002) similarly saw ODL as any type of learning in which the supplier empowers individual students to practice decisions over any at least one of various parts of learning. It is an instructive cycle wherein a critical extent of the educating is led by somebody eliminated in space or potentially in time from the student. Spring (2017) conceptualized Open and Distance Learning (ODL) as a schooling approach that spotlights on opening admittance to instruction and preparing, arrangement, liberating students from requirements of overall setting, and offering adaptable learning open doors to people and gathering of students. Cole (2012) defined ODL as actual division between the educator and the student with the guidance being conveyed through an assortment of media, including print and other data. Osuji (2017) saw ODL as laying accentuation on autonomous examinations as an approach to freeing students from the chains of school or school schedule, however it doesn't suggest self-review, since the division of students from the instructors doesn't mean that the correspondence has cut the student off from assessments and examinations. From the perspective of Aremu (2015), open and distance learning courses are comprised of various course parts or learning materials which may include the following: tapes, audiotapes, CD-ROMS, course readings and lab materials. Usually, educational cost materials are sent with inquiries to be responded to via internet or through various other means.

According to Cole (2012), ODL is the schooling system through which a higher educational institution provides a learning climate to an isolated student even when the educator or instructor is not physical present or without following strictly the traditional method of teaching and learning.

Open and Distance learning is flexible and its flexibility is to the extent that an enormous number of individuals who would not have accessed higher education can profit from it. Open and distance learning is a system of education in which teaching and learning requirements are limited both in wording, access, pace, technique for study, in general setting, or any mix of these. It is a sort of learning by which opportunity is given to individuals who have passed the periods of induction into normal colleges or who do not have the convenience to follow the traditional education process to proceed with their schooling.  Open and distance learning gives expanded opportunities to a bigger populace in various circumstances and necessities. Through ODL, students and workers who have issues with distance can access education freely and easily since ODL centres can be operated in any place and since the system is more flexible and adaptable to time and space. From the different definitions given, it can, hence, we can conclude that open and distance learning (ODL) is such a profoundly adaptable program that takes care of the comfort, time and interests of the students.

## Quality assurance and ODL in Nigeria

Quality has consistently been an issue in distance education (DE) and distance learning (DL). Since distance schooling's origin and resulting boundless dissemination, distance instruction has been expanding admittance to training, a reality that has been constrained numerous nations to embrace distance instruction as a component of their instructive framework. Further, this worldview of 'admittance to training' is in accordance with the conviction of independence and autonomy. Distance training has advanced over the years, the same way the physical world has developed from the post-modern time to this present age. Despite the development however, many are worried over the nature and quality of instruction given by open and distance learning institutions. This has been a subject of constant conversation and study (Jegede, 2019). This worry comes mainly from the way distance instruction which is dissimilar to customary training is given.

Quality assurance in ODL is much of the time linked to the quality of learning materials since learning is at the heart of the ODL experience. In open and distance learning (ODL), quality assurance incorporates creating and delivering learning materials, scholarly projects, administrations and supports, as well as guidelines for effective learning. Assurance of value in ODL depends on the variety of strategies, techniques, frameworks and practices employed in other to accomplish the task of upgrading the worth of the education offered in ODL institutions. The variety of value assurance frameworks that will be laid out will likewise rely upon the size and nature of the organization (Romero, 2007).

## Concept of Learning Material

Learning materials are any collection of materials which may be animate, inanimate, or human and non-human resources that a teacher or instructor may use in teaching to aid students in learning situations (Beth, 2018).  The grand aim of using learning materials is to help students to achieve their goal of learning and to help the instructor achieved desired learning objectives. Learning material help students to concretize their learning experience and makes learning more exciting, stimulating and interactive. Learning materials may include active learning and assessment.

The term learning material encompasses all the materials and physical means which an instructor might use to implement instruction and facilitate students' achievement of instructional *objectives.* Every institution is equipped with learning material which can be called instructional or teaching and learning aid. Tutors and learners are expected to get conversant with the use of such learning materials as designed by the institution. Open and Distance

Learning (ODL) materials have some unique differences in form, style and design which is not popularly used in conventional tertiary institutions. The learning materials of an ODL is designed with the intent to aid the student in self-study since they will not necessarily have to be present in the classroom.

## Reasons for Quality Assurance in ODL

There are principles that govern the foundation of quality assurance. These principles are dependent upon a network of interest such as: government, inputs of experts, and environmental influence. These principles help administrators of ODL in the advancement of educational establishments and programs, they help in giving a premise to future preparation of higher establishments, they help in the upgrade of the quality of instructive materials, and they boost correspondence across schooling in order to upgrade a country's capacity to produce quality academic information. They also help students to make better choices with regards to student financing (Jodie, 2017).

Quality has always been an issue in distance education (DE) and distance learning (DL). Since distance education's inception and subsequent widespread diffusion, distance education has been increasing access to education, a reality that has been compelled many countries to adopt distance education as part of their educational system. Further, this paradigm of 'access to education' is in line with the belief of student autonomy and independence, as students studying at a distance often do so alone.

Distance education has evolved over time in the same manner the society has evolved from the post-industrial era to the information age. As a result of this concern over the quality of education provided by open and distance learning institutions have been a subject of intense discussion and study. The main thrust of this concern lies from the fact that distance education unlike conventional education is peculiar and not familiar to majority. In addition to that distance education is student centred unlike the tradition conventional education which is teacher centred thus attracting a lot of study in this area. For instance, interactive communication between and among students and tutors is now being emphasized (Greg, 2015). It is with this 'access to education' and managing open and distance learning (ODL) provisions. Any consideration of quality assurance in the context of ODL entails a detailed examination of those characteristics that can give credibility to the various programmes and products of ODL. With the increasing acceptance of Open and Distance Learning (ODL) as widening access to education, it has become increasingly necessary that Quality Assurance (QA) process is developed and maintained if the ODL provision is to be relevant and more functional that the products recognised in the conventional higher learning in emerging open learning environment. Quality assurance in Open and Distance Learning (ODL) institutions has gained serious attention by institutions, stakeholders and scholars since 1990s. Institutions have in response to quality assurance line of inquiry, begun to re-define and reorient their institutional missions, strategies, and visions to incorporate and address quality issues. Quality assurance has now reached an important turning point and influencing open and distance learning institution's management strategies and cultures. Numerous reports have been published to share ideas, experiences, and articulate the 'how and how not to' and 'best practices' of quality assurance implementation in open and distance learning context from around the world (Henry, 2014).

## Statement of the Problem

Despite the advantages ODL has over conventional education, there are still some problems with the system. Open and Distance Learning institutions in South-South Nigeria face significant challenges in ensuring the quality assurance of their learning materials. The lack of standardized quality assurance strategies for managing learning materials in these institutions hinders the consistency and reliability of educational content delivery. Without effective quality control measures, there is a risk of substandard or outdated learning materials being distributed to students, leading to a compromise in the overall educational experience.

 Furthermore, the absence of a robust feedback mechanism to evaluate the effectiveness of the learning materials exacerbates the difficulty in identifying and rectifying issues in content quality. This can impede students' ability to access accurate and up-to-date information, potentially undermining the credibility and reliability of the educational programs (Amie-Ogan, Edo, & Elenwo 2022)..

In addition, the dearth of technological infrastructure and resources in the South-South region poses a considerable challenge to the implementation of quality assurance strategies for managing learning materials in Open and Distance Learning institutions. Limited access to internet connectivity and digital resources obstructs the effective dissemination of updated and interactive learning materials, thereby hindering the potential for an engaging and dynamic learning experience. The absence of adequate funding and institutional support further exacerbates these challenges, impeding the development and maintenance of a comprehensive system for quality assurance in learning material management. Without the necessary financial backing and institutional commitment, it becomes arduous to conduct regular reviews, updates, and improvements to the learning materials, potentially leading to a stagnant and outdated educational curriculum. It is against the backdrop that the study examine the Influence of Quality Assurance Strategies in Management of Learning Materials in Open and Distance Learning Institutions in South-South Nigeria

## Purpose of the Study

The purpose of this study was to examine Influence of Quality Assurance Strategies in Management of Learning Materials in Open and Distance Learning Institutions in South-South Nigeria. Specifically, the study sought to achieve the following objectives;

1.    Find out the extent to which introduction of multimedia elements in materials enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

2.   Find out the extent to which fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

3.   Find out the extent to which implementation of peer reviews enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

## Research Questions

The researcher developed the following research questions that guided the study

1.   To what extent does introduction of multimedia elements in materials enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria?

2.   To what extent does fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria?

3.   To what extent does implementation of peer reviews enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria?

## Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1.   There is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which introduction of multimedia elements in materials enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

2.   There is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

## METHODOLOGY

In carrying out this study, the descriptive survey design was adopted. Descriptive survey study is employed to describe the interaction of variables or situation as it is. A descriptive survey design ultimately involves the responses of a particular set of people or entities representing a population a researcher thinks it relate to them.  This design was considered suitable for the study since the study collected data from a sample of respondents on the variable under study without manipulating the independent variable. The population of this study was 183 facilitator and administrators. This comprises 137 facilitators and 46 administrators in faculty of education of National Open University of Nigeria (NOUN) study centres in all the six states in South-south Nigeria. The sample of this study was 183 facilitator and administrators. This comprises 137 facilitators and 46 administrators in faculty of education of National Open University of Nigeria (NOUN) study centres in all the six states in South-south Nigeria. The entire population was studied as a census without sampling due to the manageable size of the population. The instrument for data collection was a self-designed questionnaire titled "Influence of Quality Assurance Strategies in Management of Learning Materials Questionnaire" (IQASMLMQ). Responses to the questionnaire items were structured on a four-point summated rating scale of:  Very High Extent (VHE) – 4points, High Extent (HE) – 3points, Low Extent (LE) – 2points and Very Low Extent (VLE) - 1point. To ensure the validity of the instrument, the initial draft of the questionnaire, the research topic, Purpose of study, research questions and hypotheses were given to the researchers' supervisor and two experts in the field of Measurement and Evaluation in Rivers State University. To establish the internal consistency of the instrument; copies of the instrument were given to 12 respondents from Owerri study center from the faculty of education who were not part of the study. The data collected were analyzed using Cronbach Alpha method. The reliability coefficient of 0.85, 0.75 and 0.77 were obtained which showed that the instruments were reliable. The data collected for the study were analyzed using mean and standard deviation to answer research questions, while the z-test statistics was used to test the hypotheses at 0.05 level of significance

## RESULT

**Research Question 1:** To what extent does introduction of multimedia elements in materials enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria

**Table 1: Mean Responses on the Extent Introduction of Multimedia Elements in Materials Enhance the Management of Learning Materials in Open and Distance Learning Institutions**

| S/N | Items | Administrators=41 | | | Facilitators= 121 | | |
|-----|-------|-------|-----|-----|-------|-----|-----|
| | | Mean | S.D | Rmk | Mean | S.D | Rmk |
| 1 | The integration of media that contain sound, text and videos make in learning materials in Open and Distance learning institutions. | 3.06 | 0.75 | HE | 2.79 | 1.01 | HE |
| 2 | Multimedia elements enhance the engagement and interactivity of learning materials for students in Open and Distance Learning institutions. | 3.29 | 0.63 | HE | 2.88 | 1.03 | HE |
| 3 | The incorporation of multimedia elements enhances inclusivity of learning materials for diverse learners in Open and Distance Learning institutions. | 2.95 | 1.09 | HE | 2.87 | 1.04 | HE |
| 4 | Multimedia elements contribute to the improvement of content comprehension among students in Open and Distance Learning institutions. | 3.22 | 0.68 | HE | 2.70 | 0.83 | HE |
| 5 | The incorporation of multimedia elements enhances accessibility of learning materials for diverse learners in Open and Distance Learning institutions | 2.78 | 1.02 | HE | 3.10 | 0.69 | HE |
| 6 | Integration of multimedia elements in learning materials promote the development of a dynamic and stimulating learning environment within Open and Distance Learning institutions? | 2.93 | 1.13 | HE | 2.69 | 1.06 | HE |
| 7 | Integration of multimedia elements facilitate the customization and personalization of learning materials to cater to the individualized learning needs of students in Open and Distance Learning institutions. | 3.13 | 0.75 | HE | 3.17 | 0.86 | HE |
| 8 | Utilization of multimedia elements foster a collaborative and interactive learning community within Open and Distance Learning institutions. | 2.90 | 0.87 | HE | 3.02 | 0.93 | HE |
| 9 | Utilization of multimedia elements contribute to the improvement of content retention among students in Open and Distance Learning institutions. | 2.95 | 0.91 | HE | 2.97 | 0.60 | HE |
| | **Grand Mean** | **3.02** | **0.84** | **HE** | **2.89** | **0.90** | |

**HE=High Extent**

The analysed data in Table 1 showed the mean and standard deviation scores of respondents on the extent introduction of multimedia elements in materials enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria. The analysis shows that majority of the respondents agreed with all the items in the table. This is seen in the mean responses that fall within the range of high extent. With grand mean scores of 3.02 and 2.89 for administrators and facilitators respectively, the answer to research question four is that introduction of multimedia elements in materials enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria to a high extent.

**Research Question 2:** To what extent does fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria?

**Table 2: Mean Responses of the Respondents on the Extent Fostering of Collaboration among Instructors and Content Developers Enhances the Management of Learning Materials in Open and Distance Learning Institutions**

| S/N | Items | Administrators=41 | | | Facilitators= 121 | | |
|-----|-------|-------|-----|-----|-------|-----|-----|
| | | Mean | S.D | Rmk | Mean | S.D | Rmk |
| 10 | Open and Distance Learning institutions facilitate collaboration between instructors and content developers in the management of learning materials. | 2.89 | 0.72 | HE | 2.93 | 1.03 | HE |
| 11 | Collaborative development enhances the diversity and richness of learning materials available in Open and Distance Learning programmes | 2.98 | 0.61 | HE | 3.03 | 0.93 | HE |
| 12 | Communication and coordination among instructors and content developers enhances the creation of | 2.90 | 1.00 | HE | 3.45 | 0.59 | HE |

| S/N | Items | Mean | S.D | Rmk | Mean | S.D | Rmk |
|---|---|---|---|---|---|---|---|
|  | comprehensive learning materials for Open and Distance Learning institutions. |  |  |  |  |  |  |
| 13 | Collaborative approach contribute to the integration of innovative teaching methodologies and technologies into learning materials in Open and Distance Learning institutions in South South, Nigeria. | 3.29 | 0.69 | HE | 3.06 | 0.89 | HE |
| 14 | Collaborative content development ensures the alignment of learning materials with the established educational standards and objectives in Open and Distance Learning. | 2.76 | 0.73 | HE | 2.91 | 0.83 | HE |
| 15 | The fostering of collaboration enhance the efficiency and timeliness of developing and updating learning materials in Open and Distance Learning institutions. | 2.82 | 1.10 | HE | 2.69 | 1.01 | HE |
| 16 | Collaboration promote a sense of shared ownership and responsibility among instructors and content developers in ensuring the continuous improvement of learning materials in Open and Distance Learning institutions. | 3.11 | 0.72 | HE | 3.02 | 0.73 | HE |
| | **Grand Mean** | **2.96** | | **HE** | **2.85** | | **HE** |

**HE=High Extent**

The analysed data in Table 2 showed the mean and standard deviation scores of administrators and facilitators of ODL institutions on the extent fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria. The analysis revealed that majority of the respondents with all the items in the table as seen in the mean scores that fall within the range of high extent. With mean scores of 2.96 and 2.85 for administrators and facilitators, the answer to research question five is that fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria to a high extent.

**Research Question 3:** To what extent does implementation of peer reviews enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria?

**Table 3: Mean Responses on the Extent  implementation of Peer Reviews Enhance the Management of Learning Materials in Open and Distance Learning Institutions**

| S/N | Items | Administrators=41 | | | Facilitators= 121 | | |
|---|---|---|---|---|---|---|---|
|  |  | Mean | S.D | Rmk | Mean | S.D | Rmk |
| 17 | Having different experts review materials contribute to quality assurance and improvement of learning materials in Open and Distance Learning institutions. | 2.99 | 1.02 | HE | 2.74 | 1.01 | HE |
| 18 | Having different experts review materials foster a culture of constructive feedback in the development of learning materials for Open and Distance Learning institutions | 3.02 | 0.81 | HE | 2.91 | 1.03 | HE |
| 19 | Having different experts review materials foster continuous improvement in the development of learning materials for Open and Distance Learning institutions | 2.87 | 1.02 | HE | 2.69 | 1.04 | HE |
| 20 | Having different experts review materials ensures alignment of learning materials with the learning outcomes and objectives in Open and Distance Learning institutions. | 3.02 | 0.83 | HE | 2.84 | 0.83 | HE |
| 21 | Having different experts review materials facilitate effective communication and collaboration among reviewers and content developers during the peer review process for learning materials. | 2.99 | 0.92 | HE | 3.11 | 0.69 | HE |
| 22 | Having different experts review materials contribute to the identification and incorporation of diverse perspectives and best practices in the | 2.94 | 1.04 | HE | 3.07 | 1.02 | HE |

| | | $\overline{X}$ | S.D | | | | | |
|---|---|---|---|---|---|---|---|---|
| 23 | management of learning materials in Open and Distance Learning institutions. Having different experts review materials inform the continuous enhancement and modification of learning materials to meet the evolving needs of learners in Open and Distance Learning institutions | 3.13 | 0.69 | HE | 3.01 | 0.81 | | HE |
| | **Grand Mean** | **2.99** | **0.95** | **HE** | **2.91** | **0.93** | | **HE** |

**HE=High Extent**

The data analyses in table 3 showed the mean and standard deviation scores of administrators and facilitators on the extent implementation of peer reviews enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria. The analysis revealed that majority of the respondents agreed with all the items in the table as seen in the mean scores that fall within the range of high extent. With grand mean scores of 2.99 and 2.91 for administrators and facilitators respectively, the answer to research question six is that implementation of peer reviews enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria to a high extent.

**Test of Hypotheses**

**Ho$_1$:** There is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which introduction of multimedia elements in materials enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

**Table 4: Z-Test Analysis on Mean Rating of Administrators and Facilitators in Distance Learning Centres on the Extent to Which Introduction of Multimedia Elements in Materials Enhances the Management of Learning Materials in Open and Distance Learning Institutions in South-South, Nigeria.**

| Respondents | N | $\overline{X}$ | S.D | df | A | z-cal | z-crit | Decision |
|---|---|---|---|---|---|---|---|---|
| **Administrators** | 41 | 3.02 | 0.84 | | | | | |
| | | | | 160 | 0.05 | 0.88 | 1.96 | Failed to Reject |
| **Facilitators** | 121 | 2.89 | 0.90 | | | | | |

The analyses on Table 4 showed that the z-cal value is 0.88while the z-crit value is 1.96 at 160 degree of freedom. Since the z-cal value of 0.88 is less than the critical table value of 1.96 at 160 degree of freedom, the null hypothesis was not rejected implying that there is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which introduction of multimedia elements in materials enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

**Ho$_2$:**There is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

**Table 5:    Z-test Analysis onMean Rating of Administrators and Facilitators in Distance Learning Centres on the Extent to Which Fostering of Collaboration among Instructors and Content Developers Enhances the Management of Learning Materials in Open and Distance Learning Institutions in South-South, Nigeria**

| Respondents | N | $\overline{X}$ | S.D | df | A | z-cal | z-crit | Decision |
|---|---|---|---|---|---|---|---|---|
| **Administrators** | 41 | 2.96 | 0.84 | | | | | |
| | | | | 160 | 0.05 | 0.43 | 1.96 | Failed to Reject |
| **Facilitators** | 121 | 2.95 | 0.88 | | | | | |

The analyses on Table 5 showed that the z-cal value is 0.43while the z-crit value is 1.96 at 160 degree of freedom. Since the z-cal value of 0.43 is less than the critical table value of 1.96 at 160 degree of freedom, the null hypothesis was not rejected implying that there is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

**Ho$_3$:** There is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which implementation of peer reviews enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

**Table 6: Z-Test Analysis on Significant Difference in the Mean Rating of Administrators and Facilitators in Distance Learning Centres on the Extent to Which Implementation of Peer Reviews Enhances the Management of Learning Materials in Open and Distance Learning Institutions in South-South, Nigeria.**

| Students | N | $\overline{X}$ | S.D | df | A | z-cal | z-crit | Decision |
|---|---|---|---|---|---|---|---|---|
| **Administrators** | 41 | 2.99 | 0.89 | | | | | |
| | | | | 160 | 0.05 | 0.58 | 1.96 | Failed to Reject |
| **Facilitators** | 121 | 2.91 | 0.88 | | | | | |

The analyses on Table 6 showed that the z-cal value is 0.58while the z-crit value is 1.96 at 160 degree of freedom. Since the z-cal value of 0.58 is less than the critical table value of 1.96 at 160 degree of freedom, the null hypothesis was not rejected implying that there is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which implementation of peer reviews enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

## Discussion of Findings

The result of the findings for research question one revealed that introduction of multimedia elements in materials enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria to a high extent. The corresponding hypothesis four revealed that there is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which introduction of multimedia elements in materials enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria. This finding was supported by the findings of Greg (2015) which revealed that the introduction of multimedia elements in learning materials has been found to enhance the management of learning materials in Open and Distance Learning (ODL) institutions. Multimedia technology allows for the delivery of educational material in various formats, which can simplify and enhance the learning experience. The use of multimedia in ODL for teacher education has brought success in designing, implementing, and evaluating the process of online delivery. Multimedia resources such as animations, videos, and photos can enhance students' understanding of complex concepts in engineering materials courses. Additionally, multimedia materials can be used to apply theoretical concepts to real environments, promoting students' learning and autonomy. The selection and combination of appropriate media types in educational materials is crucial for effective learning, and the use of multimedia technology can provide exciting opportunities for enhancing the learning experience.

The result of the findings for research question two revealed that fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria to a high extent. The corresponding hypothesis five revealed that there is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which fostering of collaboration among instructors and content developers enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria. This finding was supported by the findings of Aremu (2015) who reported that fostering collaboration among instructors and content developers can enhance the management of learning materials in Open and Distance Learning (ODL) institutions. By working together, instructors and content developers can ensure that instructional materials are well-designed and meet the needs of learners. This collaboration can lead to the development of high-quality learning content that is based on the expertise and experience of both instructors and content developers. Additionally, collaboration can help in sharing and reusing learning content, reducing redundant work and costs. It can also support collaborative teaching activities and the gradual development of content.

Lastly, the result of the findings for research question three revealed that the implementation of peer review enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria to a high extent. The corresponding hypothesis six revealed that there is no significant difference in the mean rating of administrators and facilitators in distance learning centres on the extent to which implementation of peer reviews enhances the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria. This finding is supported by the findings of Jodie (2017) which revealed that the implementation of peer reviews in Open and Distance Learning institutions can enhance the management of learning materials to a certain extent. Peer assessment activities have been found to have benefits beyond assessment, such as enhancing critical thinking and writing capabilities of students. However, the reliability and validity of peer assessment activities can be a concern, as low reliability has been observed in some studies.

## Conclusion

Based on the findings of the study it was concluded that the quality assurance strategies for the management of learning materials in open and distance learning in South-South are conducting of regular content reviews, establishment of standards for development of materials, utilization of students feedback mechanisms, introduction of multimedia elements in materials, fostering of collaboration among instructors and content developers and implementation of peer reviews. It was further revealed that both administrators and facilitators in distance learning centres agree that the use of these strategies enhance the management of learning materials in Open and Distance Learning institutions in South-South, Nigeria.

## Recommendations

Based on the conclusion of the study, the following recommendations were made:

1. Developers of learning materials for Open and Distance Learning centres should as a matter of policy incorporate multimedia elements in learning materials for students. This ensures the materials are rich enough to meet learners needs.

2. Administrators of Open and Distance Learning Centres should deliberately create a platform that would foster collaboration among instructors and content developers. This would ensure that instructors who are the end users of the learning materials and who get feedbacks from students should make enough input in the production of the learning content.

3. Administrators of Open and Distance Learning Centres should ensure that produced learning materials are subjected to peer reviews from competent hands before they are utilized for teaching.

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