

The Impact of Instructional Materials in Teaching and Learning of Biology in the Colleges of Education in the Central Region of Ghana

Sabina Amos ^{1,*}, Mark Prince Kwamena Eghan ¹, Eric Oppong ¹

¹Department of Science, Komenda College of Education, Komenda, Ghana

*Correspondence: Sabina Amos (amossabina5@gmail.com)

Abstract: The purpose of the study was to examine the impact of instructional materials in teaching and learning biology in the Colleges of Education in the Central Region of Ghana. Qualitatively, a case study research design was selected for the study. The population of the study consists of three Biology tutors in the three Colleges of Education in the Central Region. The purposive sampling technique was chosen to select all the three colleges and three Biology tutors for the study. The interview guide was the main instrument for the data collection. Data were analysed using the interpretative technique based on the themes arrived at during the data collection from the respondents. The study concluded that instructional materials boost students' cognitive abilities and arouse their interest in the lesson by helping them to reason critically during teaching and learning. The study also revealed that the competencies level of tutors helps them in the assessment of the subject, selecting relevant materials for each concept. Their pedagogical skills depend on their competencies in the classroom instructions. The study also concluded that a good presentation of a lesson has a substantial impact on teaching and learning situations, as well as the vast amount of information available to students, to supplement their instruction and the principles for appropriate use of instructional materials. It is recommended that professional development should be organised for the Biology tutors in their respective colleges to have competencies in using relevant instructional materials in assessing students in Biology lessons. It is also recommended that Ghana Tertiary Education Commission (G-TEC), National Teaching Council (NTC), and universities should collaborate with the colleges to organise workshops and seminars for tutors teaching Biology to update their knowledge in the use of digital instructional materials in lesson presentation.

Keywords: Instructional Materials, Teaching and Learning, Biology, Colleges of Education

How to cite this paper:

Amos, S., Eghan, M. P. K., & Oppong, E. (2022). The Impact of Instructional Materials in Teaching and Learning of Biology in the Colleges of Education in the Central Region of Ghana. *Open Journal of Educational Research*, 2(5), 213–221. Retrieved from <https://www.scipublications.com/journal/index.php/ojer/article/view/400>

Received: December 20, 2021

Accepted: July 25, 2022

Published: July 30, 2022



Copyright: © 2022 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Tutors' poor choice of teaching methods has been criticized for pupils' poor performance in public tests over the years. Other variables, such as instructional materials, tutor qualifications, college environment variables, students' characteristics, and so on, all play a role in teaching and learning activities. The purpose of this study is to investigate the effects of instructional materials on Biology teaching and learning student. It is impossible to overstate the value of instructional materials in the teaching and learning process. This is due to the fact that such resources make teaching/learning more enjoyable, vivid, and concrete. The gadgets invented or purchased to assist or facilitate tutors in imparting organized knowledge, abilities, and attitudes to students within an instructional context are known as instructional materials [1]. To be more specific, instructional materials are educational tools that are utilized to illustrate teaching content, making learning more concrete and less abstract. Instructional material improves

factual information acquisition and retention by giving a more realistic experience. Not only does instructional material provide the necessary actual experience, but it also assists pupils in integrating previous knowledge. Biology is a science that focuses on the study of living creatures in their natural habitat. The utilization of plants and animals in connection to the items in their environment is the subject of Biology. Biology is the basic science that people who studied the field have primarily utilitarian goals which motivate them to do so. A biologist must be interested not only in plants and animals, but also in the application of professional competence, knowledge, and dexterity in presenting Biology information to students in the classroom so that they can help other users of Biology information in their respective Ghanaian basic schools. Biology education is one of the subjects offered in Colleges of Education in Ghana; it is among the science subjects that students write semester based exams from the various afflicted universities. Among the science elective disciplines, Biology is the most popular choice among students. This course gives students the skills they need to keep the plants and animals in their surroundings clean and orderly. In every semester, a large number of students enroll for this course, yet they typically perform poorly on the end-of-semester exams this is due to the traditional Biology teaching methods such as discussion, demonstration, Socratic Method, and project methods which have been employed by tutors in the teaching of the course where have students do not have a significant impact on the requisite knowledge and abilities of the topics. Traditional methods are insufficiently difficult to meet the demands of students as you teach them. As a matter of fact, Biology processes are more practical; each participant of an instructional process must actively have participated by students in order for the entire process to be maximized or control [2]. It will be fascinating to see how instructional materials affect the teaching and learning of Biology to achieve academic success and apply to other subject areas.

Because most Biology tutors are not well-versed in the usage of improvised educational material, Biology teaching and learning has suffered as a result of that. Despite the efforts of Biology tutors to improve student performance, the poor performance of students in Biology is visible in the overall outcomes of students output in their end-of-semester exams especially the practical aspect; this suggests that more work remains undone when they are about writing exams [3]. Many teaching methods and approaches have been tried, but none of them have been successful in improving students' Biology understanding. Most tutors teach the topics in abstraction, making it a complete and difficult task for students and this has worked against academic performance maximization. Furthermore, instructors are not up to date on the current educational trends in Biology teaching and learning. Biology in most cases is taught without the use of practical methods, such as hands on activity with mind that colleges have fewer materials in the various labs. Students just memorize information about Biology without comprehending and also how they can apply to real-life situations. This research looks into the impact of instructional materials on Biology teaching and learning in colleges of education in central Region of Ghana. The primary goal of the research was to evaluate instructional materials and their impact on teaching and learning of Biology at the colleges of education. The study sought answer these research questions- (1). what is the link between instructional materials and the teaching and learning of Biology? (2) how do tutors influence the choice of instructional material for Biology classes? (3) what is the substantial difference in academic performance between students who are taught with instructional materials and those who are not?

2. Review of the Literature

2.1. Instructional Material Concept

The two fundamental words instructional and media will be defined in an attempt to define the term instructional material. It is important to note, however, that

instructional content is also known as instructional media. Instruction is a planned organization of experiences inside the learning space, such as the classroom, laboratory, or workshop, with the goal of assisting students in achieving desired changes in behavior or performance [4].

"Media" is used to refer to television, satellite communication, computers, and other advanced modern technologies. Now, instructional materials, as the name implies, are visual and audio-visual tools that aid in the concretization of abstract concepts and ideas in the teaching/learning process. They're also materials that the instructor utilizes to round out his lessons. Instructional resources are those that are used to help students learn more effectively [5]. Instructional material as any device with instructional content or function that is used for teaching purposes, such as books, supplementary reading materials, audio visual and other sensory materials, script for audio and television instruction, and computer manage sets of materials for construction and manipulation [6]. Instructional resources materials that aid in the facilitation of teaching and learning. The utilization of instructional materials not only encourages tutors and students to collaborate, but it also encourages students to participate in more cooperative learning activities [7]. Instructional materials are objects or devices that assist the tutor in making learning meaningful to the students [8]. Instructional media as "all available human and material resources that appeal to the students' senses of seeing, hearing, smelling, tasting, touching, or feeling and aid in teaching and learning." When kids are given the opportunity to study through more than one sense, they learn more quickly and easily. Because they stimulate students to study more, the usage of instructional material gives the tutor with engaging and appealing platforms for communicating information. In conjunction with the instructor, instructional material is a channel of communication via which information is passed for use in educational situations. When reading the description of instructional material, it becomes clear that the purpose of the material is to assist students in their learning [4].

2.2. Types of instructional materials

Instructional materials are typically categorized depending on the characteristics they present. There are a range of instructional media that could be employed commercially and efficiently in a Biology classroom setting. Visual aids are items and devices that use the senses of sight, touch, and scent to enhance learning. They are made up of non-projected aids such as chalkboards and adhesives. Charts and graphics are examples of pictorial aids. Mobile Aids in three dimensions Film strips and slides, as well as slides projector photos, charts, blackboard, posters, books, specimens, and other projected aids Audio-visual aids are learning resources that appeal to the senses of sight, hearing, and touch. Line sound film, sound strip projector, television, and video tape recorder are among them. There are three categories of audio, visual, and audio-visual instructional materials. Audio aids are educational devices that appeal to both the hearing and touch senses. Records and record players, tapes and tape recorders, radios, and laboratories are among them [9, 10].

Realia, these are real things or objects that have not been altered (as opposed to representations of models). They include, among other things, artifacts, plants, and animals. Realia are classified in a variety of ways, including specimen exhibitions and cutaway artifacts, which have considerable significance in almost every subject. They may be relevant in science-related disciplines (Biology, physics, and chemistry). For example, Biology tutors can use realia to pique students' interest in insects, fish, and other animals in their environment. When students view the organism in its natural surroundings, they become considerably more engaged in their classroom study. Realia corrects for omissions in students' knowledge of the subject being taught. Realia allows students to engage in "hands-on" interaction and experience [11].

Graphic Material: They are two-dimensional non-photographic materials used to convey a lesson to students. They may include visual and verbal clues that are symbolic. Drawings, charts, graphs, and posters are examples of graphic materials. Drawings are more commonly found in the completed and representational arrangement of lives to portray organisms in their most ideal forms. Charts, such as tabular charts, timelines, and classification charts, are abstract representations of abstract relationships. Graphs, such as polar graphs, scatter graphs, and line graphs, are visual representations of numerical data. Trainee tutors in disciplines like economics, geography, and mathematics can benefit from graphs. Posters, which combine lines, color, and text, are equally useful graphic materials [12].

Mock-ups and Models: Mock-ups and models are three-dimensional representations of real-world objects. Because it has breadth, length, and depth, a model or mock-up can be viewed from all sides. Models are representations of genuine things that are infinitely big, such as the earth or the solar system, or real objects that are little, whether animate or inanimate, such as the human body or the human brain. They could be exact replicas or simplified versions of the original. Some models can be disassembled for detailed examination by pupils. Mock-ups, on the other hand, are distinguished from models by their bigger size and the presence of moving and operational parts. Models and mark-ups are widely used in areas such as physics, geography, Biology, and chemistry. Trainee tutors can purchase commercially available models or make their own out of paper matches [11].

Audio Material: Audio material can be utilized for a variety of purposes, including delivering verbal information and supporting the learning of intellectual and motor abilities. Audio medium can be produced by trainee tutors because of the availability of inexpensive compact tape recorders. Other media, such as filmstrips and slides, can be used to supplement it. They are also relevant for learning goals in the affective domain of learning. In math and language, audio recording can be used to offer response drill. Furthermore, multiple copies of the medium can be simply generated. From the clarity of voice to the mental imagery generated by music and sound effects, audio material is suitable for all forms of training. [11, 12]

Overhead Projector: Transparent materials are projected using an overhead projector for a group to see. It's easy to use and may be used in a variety of ways by the tutor. While projecting transparencies in a bright space, transparency can face the audience from the front of the room and maintain eye to eye contact with students. *Filmstrip Projector*, a filmstrip is a roll of 35 mm translucent film that contains a succession of related still images that demonstrate one concept at a time. Through individual and independent study groups or other tutorial groups viewing, filmstrips can be used to educate skills, show relationships in order to impart knowledge, and alter attitude [11, 13]

Film Projector and Video Player Projector, when motion is a significant factor in a subject, a film projector or a videotape projector are utilized to project motion pictures. Black-and-white and color educational films are available. There are also motion pictures that are both sound and silence. The availability of videotape has expanded the options for the use of motion pictures, as they can now be seen on a monitor or projected onto a screen using a video projector or a digital projector for group viewing. Science, art, social sciences, and physical education all benefit from the use of motion picture which is accompanied by music; motion pictures can be a very efficient technique of accentuating distinguishing traits for jobs that require visual parts of simulation to be distinguished. Students' attitudes toward the subject of instruction can also be improved through the use of motion pictures. They can also be used to change students' attitudes toward environmental issues, excellent work habits, hygiene in health education, and other topics [11, 13].

2.3. Tutor's Competence and the Instructional Material

One of the reasons contributing to low student performance has been identified as a tutor's inability to improvise educational materials. Competence of a tutor is an underlying personality trait that is frequently linked to successful or excellent performance. These characteristics can be measured and differentiated and include enduring reasons, traits, self-concepts, values, knowledge, and abilities. To be more specific, a tutor's competency is defined as the appropriate prior knowledge, skills, attitudes, and abilities in a given environment that adjust and evolve with time and demands in order to effectively and efficiently complete a work and are measured against a minimum level. But, exactly, what does "competence" imply? The juxtaposition of information and the application of that knowledge in a teaching practice is what it means to be competent. In other words, a competent person is someone who can complete a task effectively and efficiently. A good tutor chooses, modifies, and employs a variety of teaching materials (written, visual, and audio-visual) that are appropriate for the content area and each student's reading needs and level. Effective tutors have a repertoire of best teaching practices, such as techniques, procedures, and approaches for presenting, implementing, and evaluating classroom education in accordance with the goals. They have principles, attitudes, and dispositions that build a classroom environment of mutual trust for individual qualities, particularly students' needs, interests, and abilities [14]. However, before a professional tutor chooses his Instructional Materials, he thinks about the following factors, which will serve as his selection criterion. *Availability*, Before the due date, the tutor should make sure that the teaching materials are readily available. It means that the materials must be on hand, and the tutor must inspect and test them before to the class. If the instructor must prepare it on his own, he should do so at least a day ahead of time. *Accessibility*, it is the tutor's responsibility to ensure that the instructional resources he will utilize are not only available but also accessible to him. If the materials have already been created, they should be available to the tutor on the scheduled date and time of usage. The fact that the materials are easily available but locked up in the store because the storekeeper is missing or the keys to the store have been misplaced should not be an excuse. *Affordability*, the cost of the educational materials used should not be prohibitively high for either the tutor or the institution. It's pointless to suggest that something is available but prohibitively expensive. There should be a budget for teaching materials, and the cost should not be excessive; it should be within the college's budget. *Suitability*, the tutor who is using the educational materials should make sure that the resources are appropriate for the pupils who will be using them. Materials should be appropriate for their age, experience, and intellectual level. The legal, safety, and ethical implications of the materials to be utilized must all be taken into account. Anti-social attitudes should not be depicted in the products. They should also be free of any prejudice, distortion, or bias. If the materials require electric power, a substitute should be explored to avoid disappointment due to electricity.

Once again, *simplicity*, the educational materials that will be used should be simple to use and manipulate. Before the actual date of usage, the tutor should test the materials and confirm that they are functional. There should be no technical issues, and where electricity is to be utilized, a backup power source should be available. Electric failure should not be used as an excuse for non-performance by any tutor. When an instrument necessitates the use of a technician's hands, he (the technician) should be present, and the tutor should be familiar with the operation of the instructional materials. *Qualitative*, the tutor's choice of instructional resources for instructing should be of high quality. Tutors should avoid "managing" with low-quality materials because they may fail to accomplish the desired result. *Regency*, the educational materials should be of the highest quality or close to it, and they should not be outdated. Current and innovative thought should be reflected in the instructional materials. In conclusion, it should be highlighted that the tutor's ability to use diverse instructional resources in the actualization of teaching learning objectives is critical to the enhancement of classroom instruction [14].

2.4. Instructional materials and academic performance of students

Several researches on instructional materials and academic attainment have been conducted. For example, in Kwara State, a study investigated the influence of instructional materials on students' performance in the West African School Certificate Examinations (WASCE). He found a link between material resources and pupils' scholastic achievements in 10 courses. Subject tutors were polled for information about the resources used in the classroom. Material resources, it was discovered, have a considerable impact on students' achievement in Biology as a subject [15].

In a similar vein, a study found that animated Agricultural Biology instructional packages significantly influenced the academic performance of the selected students in a study to determine the effects of animated Agricultural Biology instructional packages on Attitude and performance of colleges of education in Ghana [16]. In addition, another scientific study found a significant difference between the mean scores of students taught in Biology using video-taped instructional packages and those taught using the traditional lecture method in a study to determine the effects of video-taped instruction on college students' achievement in Biology [17].

3. Materials and Methods

Research approach for the study was qualitative. Research design selected for the study was case study. This study aimed at assessing how Biology tutors use instructional materials teaching and learning in the colleges of education in the central region of Ghana. Population of the Study consists of three College of Education and three tutors in Central Region. Purposive Sampling Technique was used to select the colleges and Biology tutors. The main instruments used for the study was interview guide consist of seven (7) items. Qualitatively, the qualitative data was analysed by the use of the interpretative technique based on the themes arrived at during the data collection from the respondents.

4. Findings and Discussions

This section of the study presents findings and discussion on the Impact of Instructional Materials in the teaching and learning of Biology.

4.1. The impact of instructional materials in the teaching and learning of Biology

When this question was asked – do you agree that instructional materials does not influence the teaching and learning of Biology? “All three tutors said, no, instructional materials influences teaching and learning of Biology, this is because the subject should be taught in practical oriented manner” The study was supported by earlier research that, when kids are given the opportunity to study through more than one sense, they learn more quickly and easily. Because they stimulate students to study more, the usage of instructional material gives the tutor with engaging and appealing platforms for communicating information. In conjunction with the instructor, instructional material is a channel of communication via which information is passed for use in educational situations. When reading the description of instructional material, it becomes clear that the purpose of the material is to assist students in their learning [4]. This posit that, instructional materials stimulate and arouse students interest in Biology and lesson, as well as influencing their learning patterns.

When this question was posed to the respondents, is the use of instructional materials a waste of time and will only complicate learning? The tutors' postulates that,

“usage of instructional materials does not waste instructional hour or either complicate learning activities in the classroom situation. It rather brings students on

board during teaching and learning by arousing their interest in the lesson. It also helps students to be active participant in the ongoing lesson by limiting tutors to talk more”.

A good tutor chooses, modifies, and employs a variety of teaching materials (written, visual, and audio-visual) that are appropriate for the content area and each student's reading needs and level. Effective tutors have a repertoire of best teaching practices, such as techniques, procedures, and approaches for presenting, implementing, and evaluating classroom education in accordance with the goals. They have principles, attitudes, and dispositions that build a classroom environment of mutual trust for individual qualities, particularly students' needs, interests, and abilities [14]. This posit that there is no time wasting in using instructional materials in Biology lesson delivery.

When this question was asked – *is the use of instructional material for classroom instruction boast the cognitive abilities of students?* The tutors posit that,

“instructional materials boast the cognitive abilities of the students, by helping them to reason critically. It helps the students to form good image about the concepts in the subjects”. Also instructional material enhances students acquisition and retention of factual information. The tutors also hint that, when instructional materials are employed in Biology lesson, it improves students’ attitudes, increase self-motivation, to have ideas in biological themes and concepts. It once again promotes students’ relevance and credibility, and understanding lessons”.

Do instructional materials facilitate and make teaching/learning activities easy, lively and concrete? When the question was asked, the tutors postulates that, “the nature of the subject can be well understood by students if concrete materials are used in it teaching. It once again helps students to manipulate with learning objects in making learning easier and lively”. A similar study in line with this study that, Biology tutors can use realia to pique students' interest in insects, fish, and other animals in their environment. When students view the organism in its natural surroundings, they become considerably more engaged in their classroom study. Realia corrects for omissions in students' knowledge of the subject being taught. Realia allows students to engage in “hands-on” interaction and experience [11].

4.2. Tutor's expertise influence the choice of instructional materials in teaching and learning of Biology

When this question was asked- *Are you a computer literate as a Biology tutor?* “All three tutors posit that they have knowledge about computing”. When this question was also posed to the students- *How does your knowledge in computer literacy helping in teaching the subject?* At this wavelength, the tutors’ postulates that, *it helps them in the use of information and communication technology in their teaching. It also assists them in selecting both electronic images and audio visual materials for teaching and learning.*

When this question was put before the tutors- *how far do you agree the improvements of Biology classroom instruction largely depend on the competencies of the tutor?* “All the three tutors affirm that, *their competencies help in the assessment of the subject, select relevant materials for each concept. Their pedagogical skills depend on their competencies in the classroom instructions”.* The study was supported by previous research that; competence of a tutor is an underlying personality trait that is frequently linked to successful or excellent performance. These characteristics can be measured and differentiated and include enduring reasons, traits, self-concepts, values, knowledge, and abilities [14].

A tutor also affirms that, *good presentation of lesson has substantial impact on teaching and learning situations, as well as the vast amount of information available to students, to supplement their instruction and the principles for appropriate media use.* A similar study supported the current study that, effective tutors have a repertoire of best teaching practices, such as techniques, procedures, and approaches for presenting, implementing,

and evaluating classroom education in accordance with the goals. They have principles, attitudes, and dispositions that build a classroom environment of mutual trust for individual qualities, particularly students' needs, interests, and abilities [14].

4.3. Substantial difference in performance between students who are taught with instructional materials and those who are not

How do you agree that the incompetence of tutor to improvise instructional material is responsible for poor performance of students? When this question was asked, the tutors posit that,

“in absence of readily available instructional materials, improvisation of a material is the next option to stimulate students in the ongoing lesson. If the tutors don't have that capacity to so, then the performance of students in Biology lessons will dwindle”.

At this wavelength this question was put to the tutors -Do students taught with instructional material perform better in applying the lesson concept than those taught with the conventional instructional method? The tutors affirm that, “Students taught without instructional material have it difficult in understanding Biology topics and hardly for students to assimilate nature of the subject”. In a similar scientific research found that animated Agricultural Biology instructional packages significantly influenced the academic performance of the selected students in a study to determine the effects of animated Agricultural Biology instructional packages on Attitude and performance of colleges of education in Ghana [16]. Another study also supported this current study that there is significant difference between the mean scores of students taught in Biology using video-taped instructional packages and those taught using the traditional lecture method in a study to determine the effects of video-taped instruction on college students' achievement in Biology [17] This implies that, the use appropriate instructional materials in lesson presentations influence the academic performance of students in Biology lessons.

5. Conclusions and Recommendations

The study concluded that, instructional materials boast students' cognitive abilities and arousing their interest in the lesson by helping them to reason critically during teaching and learning by. The study also revealed that, the competencies level of tutors helps them in the assessment of the subject, selecting relevant materials for each concept. Their pedagogical skills depend on their competencies in the classroom instructions. The study also concluded that, good presentation of lesson has substantial impact on teaching and learning situations, as well as the vast amount of information available to students, to supplement their instruction and the principles for appropriate use of instructional materials. Students taught without instructional material have it difficult in understanding Biology topics and hardly for students to assimilate nature of the subject.

It is recommended that, professional development should be organised for the Biology tutors in their respective colleges to have competencies in using relevant instructional materials in assessing students in Biology lesson. It is also recommended that Ghana Tertiary Education Commission (G-TEC), National Teaching Council (NTC) and universities should collaborate with the colleges to organise workshops and seminars for tutors teaching Biology to update their knowledge in the use of digital instructional materials in lesson presentation.

Author Contributions: Conceptualization SA and MPKE; methodology, SA and MPKE; validation, SA and MPKE; formal analysis, SA and MPKE.; investigation, SA and MPKE.; resources, SA and MPKE.; data curation, SA and MPKE; writing—original draft preparation, SA and MPKE; writing—review and editing, SA and MPKE.; visualization, SA and MPKE; supervision, SA and MPKE.; project administration, SA and MPKE All authors have read and agreed to the published version of the manuscript.

References

- [1] Ogbaji, I. D. (2017). Teachers' perception of the utilization of instructional materials in teaching social studies in junior secondary schools in calabar municipality, cross river state, Nigeria. *Global Journal of Educational Research*, 16, 95-100
- [2] Alabere Rabiati Ajoke (2017). The Importance of Instructional Materials in Teaching English as a Second Language. *International Journal of Humanities and Social Science Invention*, 6(9), 36-44.
- [3] Kwarteng, J. T. (2016). Concerns of accounting teachers in implementing Ghana's 2007 education reform: Revisited. *International Online Journal of Education and Teaching (IOJET)*, 3(3). 212-216.
- [4] Abolade, A. O. (2009). Basic criteria for selecting and using learning and instructional materials. In I. O. Abimbola & A. O. Abolade (Eds.), *Fundamental Principles and Practices of instruction*. Ilorin: Olives production Ltd.
- [5] Eniayewu, J. (2005). Effect of instructional materials on teaching of economics in secondary schools in Akoko North-East Local Government Area of Ondo State. *Ikere Journal of Education*, 7, 117-120.
- [6] Gbamanja, SPT (1990). *Essentials of curriculum and instruction theory and practice*. 1st Edition, 1990.
- [7] Onasanya, S.A., & Omosewo, E.O. (2011). Effect of improvised and standard instructional materials on secondary school students' academic performance in Physics in Ilorin, Nigeria. *Singapore Journal of Scientific Research*, 1(1), 68-76.
- [8] Ikerionwu, J. C. (2000). Importance of teaching aids and resources in classroom teaching. In A. M. Oyeneyin (Eds.), *Perspective of classroom teaching*. Abuja: Martmonic investment Ltd.
- [9] Ogaga, A. G. & Wallace, I. (2016). Effects of Instructional Materials on the Teaching and Learning of Social Studies in Secondary Schools in Oju Local Government Area of Benue State. *International Journal of Current Research*, 8(07), 33859-33863
- [10] Azikiwe, U. (2007). *Language Teaching and Learning*. Onitsha: Africana-First Pubs Ltd.
- [11] Kemp, J. E. & Daylon, D. K. (1998). *Planning and Producing Instructional Media*. New York: Harper & Row Publishers.
- [12] Wittich, W. A. & Schuller, C. F. (1981) *Instructional Technology Its Nature and Use*. New York: Harper and Row Publishers.
- [13] Adeyinka, J. (2002) *Teachers' Perception of the Effects and Use of Learning Materials: Unpublished Teaching Materials*; University Press: Ilorin.
- [14] Salandanan Gloria G. (2009) *Teacher Education (QC, KATHA Publishing Co., Inc.*
- [15] Okori, A. O., & Jerry, O. (2017). Improvisation and Utilization of Resources in the teaching and Learning of Science and Mathematics in Secondary Schools in Cross River State. *Global Journal of Educational Research*, 16, 21-28.
- [16] Nsa, O. S., Ikot, S. A., & Udo, F. M. (2013). Instructional materials utilization and students' performance in practical agriculture. *Journal of Educational Research and Reviews*, 1(4), 49-54.
- [17] Osokoya I. O (2007). Effects of Videotaped Instruction on Secondary School Students' Achievement in History. *Int. J. Afr. Am. Stud.* 6(1), 27-34.