Instructional Multimedia Application in Teaching and Learning of Home Economics Education in Federal Tertiary Institution in South-East Nigeria

Ajuluchi Chika E.
Department of Home Economics
Federal College of Education
Okene, Kogi State

&

Obi-Okeke, Chioma Adaeze
Department of Home Economics & Hospitality Management Education
Faculty of Vocational & Technical Education
University of Nigeria, Nsukka

Abstract
The focus of this study was to determine the instructional multimedia application in teaching and learning Home Economics Education. Four research questions guided the study. The study employed a descriptive survey research design. The population for the study was 1,430 which comprised of all teachers and students in federal tertiary institutions in South-East geopolitical zone in Nigeria that offer Home Economics Education. Validated questionnaire was used for data collection. Frequency on extent of multimedia usage and simple percentage were used to analyze data. Findings revealed that the instructional multimedia devices available in the schools surveyed include DVD players, external speakers, microphones, television, computers, LCD projectors, interactive white board, headphones and digital cameras. Findings also indicated that most of the available multimedia devices are rarely used in teaching. It was also discovered that factors hindering the effective use of instructional multimedia in teaching included teacher's lack of knowledge in use of multimedia device, perception of students on the instructional multimedia, teachers unwillingness to adopt multimedia device for instructional delivery, inadequate power supply to use multimedia devices among other. Based on the findings of the study, it was recommended that there should be provision of adequate instructional multimedia devices in schools; also, seminars and workshops should be organized for pre-service and in-service teachers in order to update them on the use of current multimedia devices.
Keywords: Instructional Multimedia, Teaching and Learning, Home Economics, Education

Introduction

Integration of multimedia in schools can change the existing learning principles tremendously. The use of multimedia often means that there are more student-centered work and flexible schedules. Oshinaike and Adekunmisi (2012) defined multimedia as the combination of various digital media types such as texts, images, sound and video into an integrated multi-sensory interactive

application or presentation to convey a message. Munoz-Repiso (2006) affirmed that the way information are sent and received are more effectively done and better perceived through instructional multimedia. Instructional multimedia (or a multimedia learning environment) involves presenting words and pictures that are intended to promote learning (Fakomogbon, 2012). Hence, multimedia instruction refers to designing multimedia presentations in ways that help people build mental representations aimed at enhancing learning. Neo and Neo (2000) stated that using instructional multimedia can be extremely effective in teaching and learning wide variety of disciplines.

Home Economics is one of the disciplines that can be taught with instructional multimedia. Home Economics is among the vocational courses offered in tertiary institutions in Nigeria. It is a field of study taught in different educational institutions which include secondary schools, vocational centers, adult education centers and tertiary institutions. Quiley (2011) defined Home Economics as a field of knowledge and services primarily concerned with strengthening family life through educating the individual for family living, improving the services and goods used by families, conducting research to discover the changing needs of individuals and families and the means of satisfying these needs. Aluwa (2015) explained Home Economics as an aspect of nation development which coordinates all forms of human needs both domestic and industrial setting (schools and industry inclusive). Adetuyi (2016) stressed that the practical significant of Home Economic to humans life, particularly clothing and textile, home management, food and nutrition, are part of the requirement human needed for their daily peace and life enjoyment. The discipline of Home Economic comprises of food and nutrition, home management, interior decoration, clothing and textiles, child care and development, family relationship and household economics (American Association of Family and Consumer Science, 2015). The field deals with the relationship between individuals, families and communities and the environment in which they live. The discipline prepares students for professional careers or assists in preparing to fulfil real life responsibilities at home. The field of Home Economics can improved through the application of various ICT facilities such as multimedia. Neo and Neo (2000) justified that technological advancement has positively enhanced the teaching of Home Economics in colleges through the use of multimedia recourses.

Multimedia as resources in education industry has the ability to promote Home Economics education through content planning and implementation. Lau-Ho (2005) noted that multimedia resources are useful in Home Economics as a tool for curriculum delivery, assessment, research, and hands-on experience. Lau-Ho further explained that Home Economics teachers need to use e-learning to facilitate curriculum delivery, practical lessons, and follow-up of students' learning activities. Adesoji (2012) mentioned that vocational teachers can download online relevant information for use in curriculum delivery, obtain on-line tests and quiz samples, guide students to read learning material on screen e.g files, links, and also use computer simulations for demonstration of practical lessons. Nwana (2009) opined that instructional multimedia provides the relevant platform for teachers to develop capacities for high quality research and teaching which increases their ability to innovate.

Using instructional multimedia in teaching improves reflective thinking among students. It also provides students with suitable learning resources according to their

learning styles and abilities. Most of the educators and administrators are adopting latest educational technologies in order to reach the 21st century learning standards. Ragasa (2010) justified that multimedia recourses is a great tool Home Economics teacher in federal Tertiary institutions in South-East can use to prepare students towards good learning outcome. Aburime and Uhomoibhi (2010) observed that global inter connectivity in education industry enabled home economics teacher in information technology era to answer calls for new skills, knowledge and ways of teaching and prepare students for better living and towards sustainability in the 21st century. Okoroh (2006) opined that multimedia resources do not only help students in learning but also assist teachers in meeting the new global system of teaching, which includes the preparation of teaching materials, demonstration of good teaching habit and the use of instructional teaching equipment, particularly in Home Economics.

In the application of instructional multimedia for teaching and learning Home Economics courses, teachers use multimedia to plan and deliver instruction in their classroom and Home Economics laboratory. Various multimedia tools such a slide show for visuals, a tape recorder for audio, and overhead projector for text enable students to work together in learning a particular concept. Teachers can engage students in several works and watch them collaborating with each other, peer assessing each other's work and learning as a group. Instructional multimedia enhances personalized learning. Multimedia resources help different learners meet their learning needs. Different students have different learning styles. Atkinson (2004) expressed that teachers can easily provide students with suitable learning resources using multimedia. Sife, Iwoga and Sanga (2007) posited that educators can use YouTube to provide learners with online videos, podcast for auditory learners and interactive games among learners; multimedia resources make learning easy for students at their own comfortable learning styles. Unlike traditional approaches which teachers control both speech and classroom management, while learners' response is at lower ebb; the effective use of instructional multimedia resources will encourage fast learning among Home Economics students which will definitely pave way for profitable learning output.

Multimedia has emerged in variety of resources and equipment which include real objects and models, printed text (books, handouts, worksheet), printed visual (pictures, photos, drawings, charts, graphs), display boards (bulletin, multi-purpose), interactive whiteboards, overhead transparencies, video chatting, slides and filmstrips audio (tape, disc, voice), video (visual disc) and computer software (Nwana, 2009). Ubogu (2006) reported that multimedia tools and equipment are applied to supplement or complement the teacher's effort in ensuring effective learning by students. The power of multimedia lies in the fact that it is multi-sensory, stimulating the senses of the audience (Reddi & Mishra, 2003). It is also interactive, enabling the end users of the application to control the content and flow of information. This has introduced important changes in the educational system and impact the way teachers communicate information to learners (Neo & Neo, 2000). Ogunbote & Adesoye (2006) opined that multimedia technology adds new dimension to learning experiences because concepts were easier to present and comprehend when the words are complemented with images and animations. Ogunbote and Adesoye further stated that learners retain more when variety of their senses are engaged in imparting knowledge; and the intensity of the experience aids retention and recall by engaging social, emotional and intellectual

senses. Use of multimedia for teaching home economics will aid positive impact to learners' retention.

Utilisation of multimedia resources among home economics teachers in Federal Colleges of Education in Nigeria needs urgent promotion, among other reasons to boost student retention, to eradicate obsolete method of teaching delivery and pave way for modern teaching methodology without considering likely jeopardised factors. Fariza and Nasaruddin **(**2013) explained that the factors that militate against the usage of multimedia resources among teachers of Federal of Colleges Education are numerous which include non-availability and teachers illiteracy to multimedia resources. Ochuko, Amakaino and Chamberlain (2013) noted that various multimedia technologies process available for utilization in education industry, federal colleges of education inclusive, were under-utilized as a result of teachers' incompetency which cannot be over-looked. Ezeani and Ishaq (2013) stressed that there are constraints in utilisation of instructional multimedia application to teaching and learning partly due to the perception and conservative attitude of teachers and learners, shortage of qualified staff, inadequate time allocation, hardware problem and age factor. Fakomogbon (2012) attributed the problems influencing the application of instructional multimedia in teaching and learning in Nigeria to high cost of multimedia equipment and devices, especially projection media which are very expensive to procure. Those procured are usually not adequately maintained due to lack of spare parts. Nwana (2009) asserted that electricity supply is not satisfactory even where these multimedia resources are available. For example, many schools in urban areas do not have electricity in the classrooms while many schools in the rural areas do not have an electricity supply at all. Another problem in usage of instructional multimedia is that audio-visual equipment are complex for teachers in most schools to operate because they have no adequate practical skills and knowledge on how to handle most of these multimedia resources (Ozioma & Offordile, 2011).

Teachers of Home Economics in Federal Colleges Education are to provide quality delivery in clothing and textile, home management, food and nutrition to meet-up the global advancement in teaching sector and to develop for basic technological, social and economic needs, then the traditional method of planning and delivery of instruction as currently practice must be improved. In its place, the more result oriented method of teaching such as multimedia-based approach, should be applied to teaching of home economics to pave way for a total transformation of vocational education, Home economics inclusive. Therefore, in the context of this study there is need to determine the application of instructional multimedia in teaching and learning Home Economics in Federal Tertiary Institution in South-East Nigeria.

Statement of the Problem

A cursory look at most Federal Colleges of Education in South-East, Nigeria revealed that the most prominent instructional delivery aids in the classroom and lecture theatres are white boards. Teachers do not make use of instructional media to enrich their teaching. Nwana (2009) reported that when meetings, workshops, seminars or college programmes (such as orientation) take place, resources such as PowerPoint presentations and audio media are usually provided and utilized, but these are not usually found in classrooms for teaching. Dependence on the chalk-talk method only could create problems known in communication as noise (Hackbarth, 1996; Kemp & Smellie, 1989 in Fakomogbon, 2012). Noise in classroom communication is any interference or disturbance arising from

dependence on an abstract mode of communication. A breakdown in communication could lead to physical, psychological, linguistic or emotional problems for the learners. In order for the teacher to transmit information, ideas, or skills effectively and to prevent communication breakdown, he/she should use the most appropriate instructional media to engage the students' senses actively. This minimizes or eliminates noise factor in the teaching and learning processes (Fakomogbon, 2012). Fakomogbon further explained that recognition of conventional media technologies can no longer meet the needs of the 21st century teaching and learning processes; as a result they need to be replaced by multimedia technology. This study therefore was conducted to determine instructional multimedia application in teaching and learning Home Economics Education in Federal Tertiary Institution in South-East Nigeria.

Purpose of the Study

The main purpose of the study was to determine instructional multimedia application in teaching and learning Home Economics Education in Federal Tertiary in South-East Nigeria. Specifically, the study determined the:

1. availability of instructional multimedia in teaching and learning Home Economics in Federal Tertiary Institution.
2. adequacy of instructional multimedia devices in teaching and learning Home Economics in Federal Tertiary Institution.
3. utilization of instructional multimedia devices in teaching and learning Home Economics in Federal Tertiary Institution.
4. factors that hinder the effective use of instructional multimedia in teaching and learning of Home Economics in Federal Tertiary Institution.

Research Questions

The following research questions guided the study:

1. What are the instructional multimedia available in teaching and learning Home Economics in federal tertiary institutions?
2. How adequate are the instructional multimedia devices in teaching and learning Home Economics in federal tertiary institutions?
3. How often are instructional multimedia devices utilized in teaching and learning Home Economics in federal tertiary institutions?
4. What are the factors hindering use the effective of instructional multimedia in teaching and learning of Home Economics in federal tertiary institutions?

Methodology

Design of the Study

The research design adopted for this study was descriptive survey. According to Ali (2007), a survey is a method of data collection using questionnaire or interviews to collect from data from a sample that has been selected to represent a population to which the findings of the data analysis can be generalized. The descriptive survey research design was considered suitable since the study solicited for information within the population area of the study particularly, among the teachers and students of Federal Tertiary Institution in South-East Nigeria that offer Home Economics Education.

Population for the Study

The population of this study was 1,430. This comprised of all the teachers and students in three Federal Colleges of Education namely Federal College of Education, Umunze, Federal College of Education Eha-Amufu, Alvan Ikoku College of Education, Owerri and two Federal Universities namely Micheal Okpara University of Agriculture, Umudike, University of Nigeria, Nsukka, in South-East

geopolitical zone that offer Home Economics Education. The total number of teachers is 170 while that of the students is 1,260. Details of the teachers from each university is as follows; fourty (40) Home Economics Education teachers from UNN, also Forty-five (45) Home Economics Education teachers from MOUAU. Also details of the teachers from each Federal Colleges of Education is as following FCEEA Thirty (30) teachers, ALCEO Thirty (30) teachers and FCEU Twenty-five (25) Details of the students is two hundred and fifty two (252) from each of the University UNN and MOUAU, also Two hundred fifty two students from each of the federal College of Education FCEEA, ALCEO and FCEU.

Sample size and Sampling Technique

No sampling was done, because the entire population is manageable.

Instrument for Data Collection

The instrument used for this study was structured questionnaire. The questionnaire was titled "Instructional Multimedia Application for Home Economics Questionnaire" (IMAHEQ). The questionnaire consisted of two sections. Section A sought for the respondents' demographic data while section B was based on the purposes of the study.

Validation and Reliability of the Instrument

The questionnaire was subjected to face validation to ascertain the appropriateness of the questionnaire items. Three Home Economics Lecturers were requested to validate the instrument. The experts were requested to identify and make suggestions for improving the instrument towards meeting the objectives of the study. The experts' comments and suggestions were utilized in developing the final instrument for data collection. The reliability of the instrument was done using test-retest method. The validated instrument was trial tested on 10 teachers and 20 students in Federal College of Education in South-East Nigeria. After two weeks, the same teachers and students were tested using reshuffled version of the same instrument based on the recommendation of the experts. Cronbach Alpha method was used in determining the internal consistency of the instruments and it yielded reliability co-efficient of 0.92 for all the clusters in the instrument.

Method of Data Collection

Data for the study was collected by the researchers with the aid of three research assistants. These assistants were properly guided on the purpose and nature of the study, how to distribute, collect and handle the retrieved copies of the questionnaire. The approval of the Heads of Department of each of the schools used was sought before administration of the questionnaire. However, One thousand four hundred and thirty (1,430) questionnaires were administered, but only 1,200 were returned, giving a response rate of 84%.

Method of Data Analysis

The one thousand two hundred (1,200) generated questionnaires, giving a response rate of 84% were analyzed using frequency table and simple percentage.

Results

Table 1

Demographic variance distribution of Respondents

S/N	Learners/Teachers	Frequency	Percentage (%)
1	Teachers	140	12.00

2	Learners	1,060	88.00
	Total	**1,200**	**100.00**

The total number of teachers used for the study was 170. However, Table 1 showed that only 140 (12%) teachers responded through the retrieved questionnaire. Table 1 also showed that 1060 (88%) out of 1260 learners used for the study responded through the questionnaires retrieved.

Table 2

Availability of instructional multimedia device

S/N	Types	Frequency	Percentages(%)
1	External Speakers	202	17
2	Digital cameras	500	42
3	Headphones	803	67
4	Computers	1,111	93
5	DVD players	1,200	100
6	LCD projectors	903	75
7	Microphone	809	67
8	Interactive white board	1,200	100
9	Television	1,200	100

Table 2 presents the available instructional multimedia devices which Home Economics teachers in tertiary institution can use for teaching. The table revealed that most available instructional multimedia devices in the institution surveyed are: DVD players, Television, Computers, LCD projectors, Microphone, Headphones, interactive white board, Digital cameras, while external speakers are the least available.

Table 3

Adequacy of Instructional Multimedia devices in Teaching and Learning Home Economics

S/N	Instructional Multimedia	Adequate	Fairly Adequate	Inadequate	Grossly Inadequate
1	LCD projector	1130(94)	- (-)	100 (8.3)	- (-)
2	Computers	802 (67)	269 (22.4)	29 (2.4)	100 (8)
3	DVD players	901 (75)	297 (25)	02 (0.1)	- (-)
4	Microphones	920 (77)	201 (17)	56 (4.6)	23 (1.9)
5	External speakers	801 (67)	301 (25)	67 (6)	31 (2.5)
6	Digital cameras	907 (76)	208 (17.3)	85 (7)	- (-)
7	Interactive white board	709 (59)	491(41)	-(-)	-(-)
8	Televisions	901 (75)	207 (17.2)	92(8)	-(-)
9	Headphones	800(67)	306 (26)	94 (8)	- (-)

Table 3 presented the data on the level of adequacy of instructional multimedia device in teaching and learning. The Table revealed that LCD projector is adequate 1130 (94%), computers 802 (67%), DVD players 901(75%), external speakers 801 % (67), digital cameras 907 (76%), interactive white board 709 (59%), Television 901 (75%) and Headphones 800 (67%). The finding is an indication that instructional multimedia devices are adequate in the tertiary institutions surveyed. However, adequacy was measured by the number of multimedia devices available in relation to the number of students.

Table 4

Utilization of Instructional Multimedia devices in Teaching and learning Home Economics

S/N	Instructional Multimedia	Very Often	Often	Rarely	Never
1	External speakers	-	22 (1.8)	180 (15)	998 (83)
2	Headphones	-	443 (36.9)	57 (4.7)	700 (58)
3	Digital cameras	102 (8.5)	100 (8.3)	601 (50)	397 (33)
4	Computers	18(2)	72 (6)	1111(92)	- (-)
5	LCD projector	100 (8)	122 (10)	978 (81.5)	- (-)
6	DVD players	99 (8.2)	112(9.3)	989 (82.4)	- (-)
7	Interactive white board	91 (7.6)	109 (9.0)	921 (77)	79 (7)
8	Microphones	163 (13.6)	1,037 (86.4)	- (-)	- (-)
9	Television	72 (6)	601 (50)	233 (19)	294 (24.5)

Table 4 presented the extent of utilization of instructional multimedia devices by the Home Economics lecturers and students in the federal tertiary institutions. The table showed that microphones are often utilized 1,037 (86.4%), followed by digital cameras 601 (50%); computers are rarely utilized 1111 (92%) followed by LCD projectors 978 (81.5%), DVD players 989 (82.4%), interactive white board 921 (77%), external speakers 180 (15%) and Headphones 57 (4.7%).

Table 5

Factors hindering the effective use of Instructional Multimedia in teaching and learning Home Economics

S/N	Factors	Frequency	Percentage
1	Teachers lack of knowledge in the use of multimedia devices for teaching and learning	1,200	100.00
2	Negative perception of students on the use of instructional multimedia for learning	1,200	100.00
3	Teachers unwillingness to adopt multimedia device for instructional delivery	1,000	83.33
4	Frequent vandalization of available multimedia devices by thieves and students	1,102	91.83
5	Hard and software problems common with multimedia devices	1,111	92.58
6	High shortage of power supply to encouraged the use of multimedia devices	930	77.5

7	Non-infusion of multimedia device in the curriculum of vocational subjects, home economics inclusive	106	8.83

The results shown in Table 5 indicated that the respondents agreed with all item as factors hindering effective use of multimedia, although item 7 who found to be of less important with a percentage value of 8.89%

Discussion of Findings

Result of findings from research question 1 revealed that the most available instructional multimedia devices for teaching and learning in Home Economics are DVD players, external speakers, television, interactive white board, computers, LCD projectors, microphones, headphones and digital cameras, while external speakers are the least available. This implies that the majority of tertiary institutions in South-East Nigeria are equipped with some of the instructional multimedia devices. In line with this finding, Ajayi (2005) mentioned that multimedia material that can be used in teaching and learning included computer, interactive white board, projector, television, microphones, audio and audio visual cassette as well as radio disc. This affirmed Abidoye (2010) who opined that multimedia learning devices are effective communication tools in teaching and learning and that the devices could be in form of streaming audio/video, screen images, and three dimensional graphics which can drastically enhance e-learning.

Result of findings from research question 2 indicated that most of the instructional multimedia devices available in the federal tertiary institutions in the South-East were adequate. However, adequacy was measured by the number of multimedia devices available in relation to the number of students. In line with this finding, Albarico, Tagura, Vanessa, Magnetico and Avril (2014) found that there is adequate instructional multimedia for teaching all areas in the Technology and Lifelong Education (TLE) programmes with Home Economics as one of the TLE courses. Albarico, et. al (2014) also mentioned that the instructional multimedia devices are adequately used in the corresponding subjects. In contrast, Oshinaike and Adekumisi (2012) reported that multimedia devices were inadequately utilized in the faculties. Also, Sife, Iwoga and Sanga (2007) reported that there is inadequacy of instructional resources as well as the number of the tools and equipments in relation to the number of students enrolled.

Result of findings from research question 3 showed the utilization of instructional multimedia devices for teaching and learning Home Economics. The findings revealed that microphones are mostly used. It was followed by digital cameras, computers, LCD projectors, DVD players, interactive white board. However, external loud speakers and headphones have the least extent of utilization which means the lecturers and students rarely used the devices. In support of this finding, Aburime and Uhomoibhi (2010) found out in their study that 64% of the teachers used ICT in the production of traditional resources of overhead transparencies and handouts using standard word processing package; 27% indicated that they made use of and had experience with more powerful communication and presentation software; 32% incorporated the use of any ICT software into the lectures and only 24% made use of CDs resource materials. Hence, since some of the available multimedia devices in the schools are rarely used. The implication is that the teachers do not use the instructional multimedia devices in lesson delivery as a

result student on the other hand would experience seldom demonstrations of the use of multimedia devices.

Results from research question 4 revealed the factors militating against the use of instructional multimedia devices in the teaching and learning Home Economics. These factors include teacher's lack of knowledge in use of multimedia device, negative perception of students on the use of instructional multimedia for learning, teachers unwillingness to adopt multimedia device for instructional delivery, frequent vandalization of available multimedia devices by thieves and students, hard and software problems common with multimedia devices, inadequate power supply to use multimedia devices, non-infusion of multimedia device in the curriculum of vocational subject, Home Economics inclusive. In agreement with the findings, Ragasa (2008) stated that teachers' unwillingness to adopt application of multimedia devices for instructional delivery is a challenge. The findings are also in line with what Ozoji (2003) found out that computer and other multimedia facilities are expensive and the available ones could not be used due to teachers incapability. Also, Ajayi (2005) observed that most professional educational outlets are not yet computerized and therefore the professional teachers do not yet possess operational skills to operate different information and communication technology gadgets.

Conclusion

Based on the findings of the study, it can be concluded that in spite of the potentials inherent in the use of instructional multimedia in teaching and learning of Home Economics, its use is obviously low. The findings revealed that though there are instructional multimedia available in schools, most of them are rarely used in teaching and learning Home Economics. It was also discovered that factors hindering the use of instructional multimedia in teaching included teacher's lack of knowledge in use of multimedia device, negative perception of students on the use of instructional multimedia for leaning, teachers unwillingness to adopt multimedia device for instructional delivery, frequent vandalization of available multimedia devices by thieves and students among others.

Recommendations

Based on the findings of this study, the following recommendations were proffered:

1. Instructional multimedia devices should be utilized by Home Economics teachers in teaching the different occupational areas such as food and nutrition, clothing and textiles, home management and child development. This can be achieved when there are well equipped laboratories for practical demonstration of skills.
2. Efforts should be put in place by schools to ensure a continuous steady supply of electricity needed to power most of the instructional multimedia devices. Funds can be generated internally by schools to provide electricity.
3. Seminars and workshops should be organized for pre-service and in-service Home economics teachers in order to update them on the use of current instructional multimedia devices.
4. Teachers should regularly inspect the instructional multimedia devices available to ensure that it is still working and in good running condition.
5. Provision of technical support to teachers in highly recommended in to order ensure immediate fixing of hardware/software errors and to guide

teacher on how to effectively handle instructional multimedia devices.

References

Abidoye, J. A. (2010). The role of electronic learning in improving distance education in Nigeria. *Journal of Teacher Perspective*, 4 (2), 12-18.

Aburime, M. O. & Uhomoibhi, J. O. (2010). Impact of technology and culture on Home Economics and Nutrition Science Education in developing countries. *Multicultural Education and Technology Journal, 4* (1), 4-12

Adesoji, F. F. (2012). Undergraduate students' perception of the effectiveness of ICT use in improving teaching and learning in Ekiti State University, Ado-Ekiti, Nigeria. *International Journal of Library and Information Science, 4*(7), 121-130.

Adetuyi, A. S. (2015). *Information and Communication Technology (ICT) in Vocational Teacher Education.* UNESCO Publication: Annual Africa Bulletin.

Ajayi, G. O. (2005). Information and Communication Technology: Building capacity in African universities. Proceedings of 23th Annual International Conference on Computer Science and Information Technology. Nairobi Kenya – February, 2005.

Ali, M. M. (2007). *Research methodology for beginners*. Lagos: Chuibson international press

Albarico, S. H, Tagura, R. L., Vanessa B. Z., Magnetico, J. A & Avril, J.R. (2014). Adequacy of instructional materials used by teachers in teaching technology and Livelihood Education. *International Conference on Law, Education and Humanities (ICLEH) 2, 30-31.*

Atkinson, C. (2004). *Five experts dispute Edward Tufte on PowerPoint*. Retrieved August 6, 2017, from*:* http://www.sociablemedia.com/articles_dispute.htm

American Association of Family and Consumer Sciences (2015). *Home Economics: past and present.* Retrieved on 24th March, 2017 from: www.cput.ac.za/lib/subjects/consumerscience.

Aluwa, M.A. (1999). *Home management for schools and colleges* (5th Ed.), Onitsha: African Fep Publishers.

Ezeani, N. & Ishaq, A. (2013). *Emerging issues in Business Education*. Retrieved on March 24, 2017from: hpp://www. Eze-Isha.com

Fakomogbon, M. A. (2012). Assessment of school library resources in public secondary school in Ilorin Metropolis. *Interdisciplinary Journal of Contemporary Research in Business*, 3 (10), 57-60.

Fariza, H. & Nasaruddin, D. (2013). *Factors affecting the usage of multimedia teaching tools by school teachers*. A paper presented at the 4th International Conference on Computer Science and Information Technology, Oct. 6-7, 2013, Dubai (UAE)

Lau-Ho, L. K. K. (2005). *Information and communication technologies in Home Economics. What is the situation?* Retrieved on 23rd August, 2017 from: http:repository.ied.edu.hk/dspace/handle/2260.2/8351.

Munoz-Repiso, A. and Tejedor, F. (2006). Use of information and lecturers' competencies. *Current Development in Technology-Assisted Education* 1788. Retrieved from ERIC database. (ED416553)

Neo, M. and Neo, T. (2000). *Multimedia learning: Using multimedia as a platform for instruction and learning in higher education.* Paper presented at the Multimedia University International Symposium on Information and Communication Technologies 2000 (Mzusic, 2000). October 5-6, 2000, Petaling Jaya, Malaysia. Retrieved from http://www.wla.lib.wi.us/waal/newsletter/241.html#welead

Nwana, S. E. (2009). Impediments to effective implementation of the National Open University in an age of computer technology. *Journal of Research and Production*, 15(1), 180-188.

Ochuku, I., Amakaino, U. and Chamberlaim, K. (2013). Utilization of E-learning technologies in Business Education instructional delivery in Colleges of Education in Delta State of Nigeria. *International Journal of Education and Research*, 1(10), 1-13.

Ogunbote, K. and Adesoye, A. (2006). Quality assurance in Nigerian academic libraries networked multimedia services. *Journal of Library and Information Science*, 6 (1&2) 100-111.

Okoroh L. (2006). *Information and Communication Technology*. Lagos: Macmillan Publishers.

Oshinaike, A. B. & Adekunmisi, S. R. (2012). *Use of multimedia for teaching in Nigerian University system: A case tudy of University of Ibadan*, Retrieved on 26th August, 2017 from: http://unllib.edu/LPP/.Com

Ozioma, C. A, & Offordile, S. (2011). Strategies for improving the use of electronic teaching and learning (e-learning) for Vocational Education in Tertiary Institutions of Anambra State, Nigeria. *Mediterranean Journal of Social Sciences*, 2(6), 123-129.

Ozoji, B. E. (2003).*The Place of Information and Communication Technology (ICT) in the teaching and learning of Integrated Science*. *44th Annual Conference Proceedings of Science Association of Nigeria*, 2(1), 23-25

Quigley, C. (2011). Challenges to inquiry teaching and suggestions for how to meet them. *Science Educator*, 20 (1), 55–61.

Ragasa, C. I. (2010). *A comparison of Computer Assisted Instruction and Traditional Method of teaching basic Statistics Education*. *23rd Annual Conference Proceedings of Nigerian Association of Teachers of Technology*, 16(1), 109-113.

Reddi, S. O. & Mishra, G. P. (2003). Power of Multimedia in teaching and learning. The role of electronic learning in improving distance education in Nigeria. *Journal of Teacher Perspective*; 2 (2), 15-19.

Sife, A., Lwoga, E. and Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development Using ICT*, 3(2), 127-138.

Ubogu, F. (2006). Trends in digital library services in academic libraries in South Africa: Library profiles and ETD system. *Conference Proceeding of the 44th Annual National Conference and AGM of Nigeria Library Association* held at Abuja Nigeria 18-23. Retrieved on 5th Sept. 2017 from: http:// Ubogu edu libr.//.com