EFFECT OF YOUTUBE INSTRUCTIONAL PACKAGE VIDEOS ON MALE AND FEMALE SECONDARY SCHOOL STUDENTS` ACHIEVEMENT AND RETENTION IN ECONOMICS IN MUSHIN LOCAL GOVERNMENT AREA

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ABSTRACT

The purpose of the study was to experimentally determine the effect of YouTube instructional package videos on male and female secondary school students` achievement and retention in Economics in Mushin Local Government Area. The study adopted quasi experimental research design. Two research questions and two hypotheses guided the study. The population of the study was 1261 senior secondary school II students offering Economics in Mushin Local Government Area, Lagos State (2017/2018 session). The sample size for the study was 60 senior secondary school II students (35 male and 25 female). The sampling technique adopted was purposive sampling techniques. The instrument for the study was a 50 items multiple choice objective questions of Economics achievement test and retention test adopted from West Africa Examination Council (WAEC). Using Kudar Richardson 20 (K – R 20) and test – retest, the reliability coefficient of 0.98 and 0.77 were obtained on the academic achievement test and the retention test instruments. Research questions were answered using mean and standard deviation while hypotheses were tested at 0.05 level of significance using Analysis of Covariance (ANCOVA). The study found out that YouTube instructional package video is effective for improving both male and female students` achievement and retention in Economics.

KEYWORDS: Computer Technology, YouTube, Economics, Achievement, Retention, Gender.

JEL Classification Codes: *C8, C8, A21, A20, A20, J16.*

1 INTRODUCTION

There has been a dynamic shift in the way computers have been used in the classroom in fostering teaching-learning process in Economics. Today, the trend appears to be towards the creation of courses specifically aimed at computer literacy, as well as towards integrating computer technology in other content areas across the curriculum (Bhalla, 2013). Bhalla stated further that computer technology in education has increasingly been used towards non-instructional (communication, grade averaging, record keeping etc.) and pre-instructional (developing materials, researching instructional content, etc.) uses. The great change in computer technology has brought forth a fresh perspective in the use of computers in the teaching-learning process at all level of education. Some researchers in the field of education suggest that computer technology can overhaul education by serving as a panacea to various learning changes (Bhalla, 2013). Therefore, being prepared to adopt and use technology such as YouTube and knowing how it can support Economics student learning must become integral skills in every teacher of the subject.

YouTube is an amusement and social communication website for both teachers and students in the field of Economics and others. The site can be used as a resource for teaching and learning in Economics classroom. The benefits of web-based information as a source for teaching material in Economics lessons allows students and educators to observe and provide critique in various ways of the video watched on YouTube. YouTube can also provide 'a compelling and immersive educational experience' (Fill & Ottewill, 2006). The researcher further stated that in this way it can arouse the students' attention and interest to speak in the class and present 'real-life' problems for them to discuss and also the Laurillard's 'conversation' model encourages educators to consider 'media for purpose', to dovetail, compliment and enrich and reinforce existing components of teaching. As to this, using YouTube instructional package will enable students to embrace the Economic activities such as discussion, interaction, adaptation and reflection in the classroom which are seen necessary for teaching and learning.

YouTube instructional package videos as learning materials can create communication between learners, peers and tutors. Research has suggested that there are restrictions to the amount of information that students can concentrate to and process effectively. This has been underpinned by the great idea of web as a platform (Anderson, 2007). The classroom is an ideal place to utilize technology such as YouTube instructional package videos (Ishak, 2002). YouTube instructional package videos can change students from passive to active learners (Sharif, 2005). Students need to be engaged actively in processing information, to transmit it from short-term memory to long-term memory, and recall of information is often facilitated when learned material is encoded in some ways (Giffords, 2009). To ensure that the materials used in the classroom in teaching Economics are meaningful, the use of YouTube instructional

package videos can be a good strategy to initiate communication between the students and the content which is facilitated by the encoding process.

Economics is the social science that analyzes the production, distribution, and consumption of goods and services. The term *Economics* according to Harper (2001) comes from the Ancient Greek oikovouia (*oikonomia*, "management of a household, administration") from oikoc (*oikos*, "house") + vouoc (*nomos*, "custom" or "law"), hence "rules of the house (hold)". Political economy was the earlier name for the subject, but economists in the late 19th century suggested "Economics" as a shorter term for "economic science" that also avoided a narrow *political-interest* connotation and as similar in form to "mathematics", "ethics", and so forth (Jevons, 2014). A focus of the subject is how economic agents behave or interact and how economies work. Consistent with this, a primary distinction is between microeconomics and macroeconomics. Microeconomics examines the behaviour of basic elements in the economy, including individual agents (such as households and firms or as buyers and sellers) and markets, and their interactions. Macroeconomics analyzes the entire economy and issues affecting it, including unemployment, inflation, economic growth, and monetary and fiscal policy. Other broad distinctions that can enhances students achievement include those between positive economics (describing "what is") and normative economics (advocating "what ought to be"); between economic theory and applied economics; between rational and behaviour economics; and between mainstream economics (more "orthodox" and dealing with the "rationality-individualism-equilibrium nexus") and heterodox economics (more "radical" and dealing with the "institutions-history-social structure nexus") (Andrew and Andrew, 2008; Davis, 2006).

Achievement is usually good but in most cases difficult. Academic achievement therefore, requires that the students make personal effort and get committed towards succeeding in their school work (Umeano & Adimora, 2010). Academic achievement has attracted a lot of research studies in recent years (Usman, 2013). Most of the researches sought to find out the factors that influence it, how it is measured and how it can be enhanced or improved. Jolaosho (2017) see academic achievement as a standardized test scores, grades, and inclusive academic ability and performance outcomes of a students in an examination. The academic achievement measure for this study were the questions adopted from West Africa Examination Council past questions on Economics from 2005-2016. Academic achievement also has to do with what a learner is able to accomplish in an Economics class work organized by the teacher. Achievement is therefore an important educational variable because it is concerned with the terminal behavior of a student at the end of a given period of time or even within a given time range unlike retention which deals with the ability of a student to retain knowledge in future.

Ability of Economics student to retain information or knowledge about Economics concept for future use can easily be referred to as retention in Economics. Retention according to Ngwoke and Eze (2010) is the process by which a child stores information in his memory for use at a later period. Retention occurs when facts or experiences are stored in the long term memory. A student may be able to memorize facts in the short term, but may not retain those

facts over the long term memory when asked to reproduce what he/she has been taught in the past. Ngwoke and Eze, believes that knowledge and skills are meant to be used not to be stored in the memory, much of the experiences male and female thinks are not retained nor stored in the long term memory system.

Researches in the field of education to disentangle gender gap (inequality) in academic achievement and retention have recorded much. Gender is seen as a socially ascribed attributes which differentiates feminine from masculine (Okeke, 2007). It is the fact of being male or female. Gender disparity in education is a worldwide phenomenon. Writers for both academic and popular audiences often use the term gender when considering differences between the educational experiences of male and female students, and the distinction often appears to be based on a traditional understanding of the term sex (Glasser & Smith, 2008). Okeke (2007) also opined that many people speculate that the sex of a student, whether female or male is of help in determining the academic achievement and retention of students in a particular subject such as Economics. These differences in participation and achievement and retention between male and female students were found in several different subjects examined at the secondary school level.

There are 17 government-owned senior secondary schools in Mushin Local Government Area in which Lagos State Ministry of Education (2010) asserted that there are 319 senior secondary schools in general in Lagos state offering Economics as a subject. The present study is of the view that Concept of Demand, Concept of Supply and Utility Theory should be well delivered through the use of YouTube instructional package videos because the WAEC chief examiner`s report May/June 2010, Nov/Dec 2015 and May/June 2017 proved that Nigeria students including Economics students in Mushin Local Government Area of Lagos State do not have good attempts in most questions set in these areas and thereby affecting the students` academic achievement and retention in senior secondary school Economics. In which this makes the researcher to be curious to carry-out an investigation on how YouTube instructional package videos can contribute positively to the academic achievement and retention of students in senior secondary school Economics in Mushin Local Government Area.

Research Questions

The following under listed research questions guided the study.

1. What are the Mean ($\bar{x}$) achievement scores of male and female students taught Economics using YouTube instructional package videos?
2. What are the Mean ($\bar{x}$) retention scores of male and female students taught Economics using YouTube instructional package videos?

Hypotheses

The following null hypotheses guided the study and were tested at 0.05 significance level.

Ho_1: There is no significant difference in the Mean ($\bar{x}$) achievement scores of male and female students taught Economics using YouTube instructional package videos.

Ho_2: There is no significant difference in the Mean ($\bar{x}$) retention scores of male and female students taught Economics using YouTube instructional package videos.

2 REVIEW OF LITERATURE

Recent studies have shown that communication technology is increasing exponentially with each generation as what we have today is not what we have yesterday in respect to technology in education. The youth today use technology such as the Internet more than any other methods as a medium of communication and socialization (Mishna, Mcluckie & Saint, 2009). Technology will make learning to be more interesting, especially when the educator brings in technology such as YouTube instructional package videos into the classroom to suit students` preferences. In fact, as technological advancements are made, the young generation becomes more interested to different approaches of learning such as incorporating the use of YouTube instructional package videos to initiate oral communication.

Input in social network sites provides a number of potential benefits for youngsters. Hinduja and Patchin (2008) posit the idea that bringing in YouTube into the classroom as a teaching material to prompt speaking is an effective way to provide means in which to make learning more meaningful. The researchers believes that using YouTube instructional package can give different viewpoints, express thoughts and feelings in a healthy way, and practice critical thinking skills and also that the use of YouTube provides a virtual stimulus to share thoughts and objects with personal meaning, such as in pictures and stories.

Khalid and Muhammad (2012) conducted a study on the use of YouTube in teaching English Literature. The study was conducted on the second semester 2009/2010, At Al-Majma'ah community college/English language and literature Department. The study is a pre-experimental design. The Wilcoxon test conducted in order to investigate if YouTube help students in understanding of the literature/novel" The adventures of huckleberry Finn". The findings of the study showed that students wrote positive comments regarding the use of YouTube in a literature course, and use this learning tool effectively.

Subrama, Abdullah, and Harun (2013) conducted a study on polytechnic students` perception of YouTube usage in the English oral communication classroom. The data was gathered quantitatively and qualitatively. A survey was carried out using the questionnaire consisting of closed ended questions which investigated the respondents' perceptions using the

You Tube in the classroom. According to the results, majority of the students 99.1% responded by indicating that You Tube assisted their creative thinking skills when responding to the oral communication task and 79.9% stated You Tube assignment enhanced their learning process. Students gave positive responses on carrying out the group discussion after viewing the YouTube. 82.3% of the respondents agreed to the statement.

Adigun, Onihunwa, Irunokhai, Sada, and Adesina (2015) conducted a research on the effect of gender on students' academic performance in Computer Studies in secondary schools in New Bussa, Borgu Local Government of Niger State. The research design for this study is the expo-facto design since there is no special treatment given to the subjects and there is no control group. The population of the study was 515 students offering computer science. A sample size of n=275 of students was considered where the sample size for each school was chosen using proportional allocation. The result of the study revealed no significant difference in the slightly better performance of the male students with their female counterparts in computer studies (i.e. mean difference = 1.48; t-test = 0.08 at 0.05). The higher deviation around the mean of the male students revealed that the performances of the male students are not as uniform as the female students that is, the entire female students have similar performances as opposed to the male students.

DeBerard, Glen and Deana (2012) conducted a study on the Predictors of academic achievement and retention among college freshmen: A Longitudinal Study. The purpose of this study was to investigate these possible risk factors for low academic achievement and attrition in a sample of freshman college students from a private west coast comprehensive university. The relationship of gender and academic achievement may be somewhat of an institutional anomaly, as gender is typically unrelated to overall academic achievement of the students. It may be the freshman course load was more geared toward courses in which females typically excel.

3 THEORETICAL FRAMEWORK

The theoretical framework that informs this study was the Cognitive Theory of Multimedia Learning by Moreno and Mayer 2002. This theory has relevance with application of technology and development of skills and knowledge of learners. Educational video usage in the classroom shows that videos appeal to visual learners and this is in support of the Cognitive Theory of Multimedia Learning. The Cognitive Theory of Multimedia Learning is the idea that we have both auditory and visual channels for processing information and building memory and that the active process of learning is more successful when both the auditory and the visual channels are stimulated simultaneously, also known as the dual channel assumption (Moreno & Mayer, 2002). According to Mayer and Moreno, the cognitive process of integrating is most likely to occur when the learner has corresponding pictorial and verbal representations

in working memory at the same time and the theory thereby proposes three main assumptions when it comes to learning with multimedia which were:

1. There are two separate channels (auditory and visual) for processing information (sometimes referred to as Dual-Coding theory);
2. Each channel has a limited (finite) capacity (similar to Sweller's notion of Cognitive Load);
3. Learning is an active process of filtering, selecting, organizing, and integrating information based upon prior knowledge.

. Incorporation of YouTube videos into Economics lesson has been shown to support multimedia learning (Berk, 2009). The use of YouTube instructional package videos in teaching of Economics in the classroom could capture students' attention by making learning to be more interesting and promoting the entire learning process. More specifically, well-selected YouTube instructional package videos have been found to help students engage more deeply with subject matter like Economics, and recall the information they have learned longer (Burke & Snyder, 2008). YouTube videos has also been shown to expand access to information (Snelson, 2011), create active and flexible learning environments for students of Economics and other subjects (Roodt & Peier, 2013), and provide students of Economics and other subjects with memory cues so as to support conceptualization through visualization (Eick & King, 2012).

YouTube has also been found to be a best fit to the characteristics of the Net Generation of digital learners and a valid approach to tap their multiple intelligences and learning styles at all levels of education (Liu, 2010) with high levels of acceptance (Buzzetto-More, 2014) which is supported by cognitive theory of multimedia learning. Usage has been found to enhance discourse, collaboration, and engagement in online and hybrid courses such as the case in blended learning theory (Revoir, 2012).Videos can be embedded within most learning management systems and incorporated into course discussions, assignments, quizzes, and tutorials (Snelson, 2010) as well as used to support independent learning and assist in tutoring (Berk, 2009). Some studies have indicated that use of online video sharing services is most effective when they are used to complement teaching in the classroom rather than replace lecturer demonstration supporting a hybrid or blended model of face – to – face instructions and online modality (Kelly, McGrath & Cannon, 2009). As a matter of fact, differences in believes between performance of male and female when using technology such as YouTube instructional package videos in senior secondary school students` classroom is an area worthy of exploration and this made the researcher to carry out a study on the effect of YouTube instructional package videos on male and female students` academic achievement and retention in senior secondary school Economics in Mushin Local Government Area.

4 METHODOLOGY

The study adopted quasi experimental research design. The study made used of pre-test posttest control group design since the students cannot be scattered and this led to intact classes. The study was carried out in Mushin Local Government Area, Lagos State which comprises of 17 senior secondary schools. The population of the entire students offering Economics in Mushin Local Area (1261 students) was used for the study. The sample size of the study was 60 students which were derived through purposive sampling techniques because YouTube instructional package videos need to be carried out in school with computers available for students use. Two instruments were used namely: Academic achievement test derived from West Africa Examination Council past questions from 1995-2015 and retention test which was adopted from academic achievement test but was well reshuffled to avoid students cramming of answers accordingly. A pilot study was carried out in Alimosho Local Government Area, Lagos State which is not part of the study. Kuder Richardson 20 was used to check the internal consistency of the achievement test while test-retest of spearman ranking correlation coefficient was used to ascertain the reliability level of the retention test instrument. Both gave a result of 0.96 and 0.77 accordingly. To answer the two research questions that guided the study, mean and standard deviation were used. Analysis of Covariance (ANCOVA) was used to test the two hypotheses that guided the study.

5 RESULTS AND DISCUSSION

Research Question 1

What are the Mean ($\bar{x}$) achievement scores of male and female students taught Economics using YouTube instructional package videos? Data for answering research question 1 are presented in Table 1

Table 1

Pre-test and Post-test Mean Scores of Male and Female Students Taught Economics in the achievement Test using YouTube Instructional Package Videos.

		Pretest		Posttest		
Gender	**N**	$\bar{x}$	**SD**	$\bar{x}$	**SD**	**Mean gain**
Male	35	27.43	10.90	73.43	11.40	46.00
Female	25	26.00	11.27	73.52	9.51	47.52

The result presented on Table 1 shows that the male group had a pretest mean achievement score of 27.43 with a standard deviation score of 10.90 and a posttest mean

achievement score of 73.43 with a standard deviation score of 11.40. The difference between (mean gain) the pretest and posttest for male group is 46.00. The female group had a pretest mean achievement score of 26.00 with a standard deviation score of 11.27 and a posttest mean achievement score of 73.52 with a standard deviation of 9.51. The difference between (mean gain) the pretest and posttest mean score for the female group is 47.52. For each of the two groups, the posttest achievement mean was greater than the pretest achievement means with female group having higher mean gain. This is indicative that YouTube instructional package videos (YIPV) appears to have improved the achievement score of both the male and the female students.

Hypothesis 1

Ho_1: There is no significance difference in the mean achievement scores of male and female students taught Economics using YouTube instructional package videos.

Table 2: Analysis of covariance (ANCOVA) of the significant difference in the mean achievement scores of male and female students taught Economics using YouTube instructional package videos

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	5164.191[a]	2	2582.095	103.158	.000
Intercept	21777.886	1	21777.886	870.052	.000
Pretest	5164.069	1	5164.069	206.311	.000
Gender	24.963	1	24.963	.997	.322
Error	1426.742	57	25.031		
Total	330432.000	60			
Corrected Total	21276.174	59			

The result in Table 2 shows that an F-ratio of .997 with associated probability value of 0.322 obtained with respect to the difference in the mean achievement scores of male and female students taught Economics using YouTube instructional package videos. Since the associated probability (0.322) was greater than 0.05 set as the level of significance and criterion for taking a decision, the null hypothesis (Ho_1) was not rejected. Based on this, it was therefore concluded that there will be no significance difference in the mean achievement scores of male and female students taught Economics using YouTube instructional package videos.

Research Question 2

What are the Mean ($\bar{x}$) retention scores of male and female students taught Economics using YouTube instructional package videos? Data for answering research question 2 are presented in Table 3

Table 3

Posttest and Retention test Mean Scores of Male and Female Students Taught Economics in the Retention test using YouTube Instructional Package Videos

Gender	N	Posttest		Retention test		Mean gain
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$
Male	35	73.43	11.40	60.23	10.09	-13.20
Female	25	73.52	9.50	59.20	10.23	-14.32

The result presented on table 3 shows that the male group had a posttest mean achievement score of 73.43 with a standard deviation score of 11.40 and a mean retention test score of 60.23 with a standard deviation of 10.09. The difference between (mean gain) the posttest and the retention test mean score of male group is -13.20. The female group had a posttest mean achievement score of 73.52 with a standard deviation score of 9.50 and a retention test mean score of 59.20 with a standard deviation score of 10.23. The difference between (mean gain) the posttest and retention test mean score for the female group is -13.32. For each of the two groups, the retention test mean was less than the posttest achievement mean with male group having higher mean gain. With this result, male students taught Economics had higher mean gain than their female counterpart. Thus, there is an influence attributed to gender on the retention level of students taught Economics using YouTube instructional package videos.

Hypothesis 2

H_{O2}: There is no significance difference in the mean retention test scores of male and female students taught Economics using YouTube instructional package videos.

Table 4: Analysis of covariance (ANCOVA) of the significant difference in the mean retention scores of male and female students taught Economics using YouTube instructional package videos.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	4198.935[a]	2	2099.467	66.830	.000
Intercept	1.655	1	1.655	.053	.819
Pretest	4183.506	1	4183.506	133.168	.000
Gender	17.691	1	17.691	.563	.456
Error	1790.665	57	31.415		
Total	220552.000	60			
Corrected Total	5989.600	59			

The result in Table 8 shows that an F-ratio of 0.563 with associated probability value of 0.456 was obtained with respect to the significant difference in the mean retention scores of male and female students taught Economics using YouTube instructional package videos. Since the associated probability (0.456) was greater than 0.05 set as the level of significance and the criterion for taking a decision, the null hypothesis (Ho_2) was not rejected. Based on this, it was therefore concluded that there is no significant difference in the mean retention scores of male and female students taught Economics using YouTube instructional package videos.

For both male and female group, the posttest achievement means were greater than the pretest means with female students having a mean gain of 47.52 which is slightly higher than 46.00 for their male counterpart. This findings shows that, there is no significance difference in the mean achievement scores of male and female students taught Economics using YouTube instructional package videos. The finding of the study also revealed further that YouTube instructional package video did not discriminate between male and female students taught Economics as both performances were enhanced using the package.

For both male and female groups, the posttest achievement means were greater than the retention test means with male students having a mean gain of -13.20 which is slightly higher than -14.32 for their male counterpart. Therefore, there is no significance difference in the mean retention scores of male and female students taught Economics using YouTube instructional package videos. The finding of the study shows that female students easily retain knowledge when using YouTube instructional package videos in teaching them.

It thereby stands that male and female learners are capable of competing and collaborating in Economics. In addition, this finding showed that performance is a function of strategy and orientation, not gender.

6 CONCLUSION

From the foregoing findings and discussion it could be concluded that both male and female students taught Economics using YouTube instructional package videos performed excellently in the posttest and retention test. This shows that YouTube instructional package videos were effective in improving both male and female students` achievement and retention in Economics. The female group taught Economics using YouTube instructional package videos mean achievement score was slightly higher than their male counterpart while the male group taught Economics using YouTube instructional package videos mean retention scores was slightly higher than their female counterpart but both were not statistically significant.

7 POLICY RECOMMENDATIONS

The following recommendations were made:

1. The government, through the state and federal ministries should motivate Economics teachers to upload Economics videos on various topics in Economics on YouTube because this will also help students to learn on their own.
2. As the use of YouTube instructional package videos have been found effective in promoting both male and female students achievement and retention in secondary school Economics and also since this teaching strategy is relatively new in Nigeria, it should be emphasized and integrated into the Economics curriculum of teachers training in tertiary institutions, so as to popularized the use among the teachers more especially in this era of technology in education.
3. In view of the established efficacy of the YouTube instructional package videos in retaining knowledge in both male and females students and the fact that most of the serving secondary school teachers may not be familiar with its use, the government and stakeholders in both Economics education and special needs education should organize intensive workshop and seminars on the use of modern teaching techniques such as the YouTube instructional package videos amongst others for the in – service teachers. This will help to enhance their competence especially in the choice and the use of the various innovative teaching strategies.
4. Finally, more attention in terms of constant supervision, monitoring and provision of adequate human and materials resources should be provided by the state and federal governments to secondary schools in Mushin local government area, Lagos State because this will help in improving teachers input into teaching and also promote students` academic achievement and retention in senior secondary school Economics.

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