

THE EFFECT OF POWER-POINT MEDIA ON PUPIL'S UNDERSTANDING OF BASIC TECHNOLOGY BASED ON SCHOOL TYPE AND LOCATION IN BAUCHI STATE, NIGERIA

BY

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Abstract

In recent years, the use of PowerPoint (a form of multimedia) presentation in classroom instructions has significantly increased globally without examination of their effects on student learning particularly with reference to school type and school location. This study therefore assessed the effect of power-point media on students' understanding of Basic Technology in Bauchi State with reference to school type and school location. The population of the study consisted of all the private and public primary schools in both urban and rural areas. A total of one hundred and twenty (120) pupils' were randomly selected from the four primary schools. In each school ten (10) pupils were randomly selected from primary three, five and six to form thirty pupils per school. A pre-test, treatment and post-test were administered to the three classes in each school. The result shows that private primary school scored higher than public primary school and urban primary schools scored higher than rural primary schools. Descriptive statistics and one-way ANOVA were used to analyze the result. The one-way ANOVA test indicated significant difference between the Mean scores of pupils from private and public primary schools at ($P < 0.001$). There was also a significant difference for the mean scores of pupils from urban and rural primary schools at ($P < 0.001$). The study concluded that the power-point media had effect on the achievement scores of pupils' from private and urban primary school more than public and rural primary school. The use of the package is recommended for the teaching of Basic Technology in primary schools in the study area.

Introduction

Technology education is the foundation for sustainable national development by protecting human societies from ignorance, illiteracy, disease and poverty (Tandi, 2009). Incidentally, the learners of Technology have their peculiar characteristics which may manifest special learning needs (Elliot, Kratochwill, Cook and Travers, 2001). Learners expect that the materials and method of instruction should be easily transferable to the real world. Thus, the task of the teacher includes, among others, to provide the materials and experiences to aid learning and meet the learner's expectations (Ogwo, 2004). Supporting the view above, Nkweke (2010) noted that an instructional delivery involving the use of VCD/DVD or Power point or 16mm film, still pictures, text, graphics, motion picture, background sound as well as some narrations can be used singly or combined in order to enhance learners' understanding of concepts.

Since the introduction of Microsoft PowerPoint, more and more instructors have turned to PowerPoint as the preferred method of presenting lecture material. PowerPoint has become the predominant technology platform for teaching in academia. However, the research on PowerPoint is not widely known and, as a consequence, is not reflected in classroom practices. The instructional applications of PowerPoint are virtually untapped (Berk, 2011). These days it is common practice to use

PowerPoint presentations as the primary method of lecturing. PowerPoint offers a number of advantages over previous forms of lecturing (such as the use of overhead projectors) and is considered more favorable by students as well (Bartsch and Cobern 2003). The use of Power-point in instruction, among other things, reduces learning time, reduces cost, creates room for instructional consistency, mastery learning, increases retention, increases safety, increases motivation, increases access as pupils/students instruction is not confined to times when the instructor is available. Learners enjoy interactive learning and it is efficient, effective and flexible; facilitates communication, appeals to senses of sight and hearing at the same time, provides concrete basis for understanding abstract and difficult concepts and makes for a more meaningful and permanent learning (Kellerman, 2004).

Mayer's (2001) cognitive theory of multimedia learning makes three assumptions of how students learn. According to the Dual Channel assumption, humans possess two channels of learning: one involves visual = pictorial processing while the other involves auditory = verbal processing. PowerPoint presentations enhance an instructor's lessons by taking advantage of the visual = pictorial aspect of learning (which includes screen text as well as images) along with auditory = verbal learning. Second, as students learn material, each of them has a limited cognitive load. Students can only

process a limited amount of information in their working memory at one time. Each channel has its own, separate limit, and so presenting material in more than one format (visual as well as auditory) allows students to process more information at one time without exceeding their cognitive limit. On the other hand, presenting too much information at one time may exceed their cognitive limit, impeding their ability to learn new material. Third, students engage in active learning that involves completing a set of cognitive processes while they learn. This includes paying attention to the presentation, determining the important aspects of the presentation and organizing the information, and integrating new information with pre-existing knowledge. To facilitate student learning, it is important that PowerPoint presentations are well organized, concise, and do not overload the students' cognitive load with too much information at once (Miller & James, 2011).

PowerPoint presentations can be as simple as having only text on a colored screen. Presentations can also be complex with tables, pictures, graphs, sound effects, visual effects, video clips, etc. The effectiveness of PowerPoint and other multimedia presentations may depend on the complexity of the presentation. In fact, several researchers have demonstrated that material such as irrelevant sounds (Moreno & Mayer, 2000), interesting but extraneous text (Schraw, 1998), and irrelevant pictures (Mayer, 2001) can reduce comprehension. PowerPoint has a number of useful features that can aid in the delivery of lesson material. Basic PowerPoint presentations can make use of bullet points to draw student attention to important aspects of the lesson and include images that illustrate key concepts (Miller & James, 2011). More advanced presentations may include animations. This can be as simple as animating a list of bullet points such that they appear one at a time as the instructor discusses each one in turn, to animating figures such that motion or a progression of events can be conveyed through the figure. A study of a series of computer based instruction modules found that animated visuals were more influential in student learning over static visuals when the animations played an integral part in the explanation of the concept in question and were not simply attention grabbing (Rieber 1990).

The strength of PowerPoint is that it allows instructors to present visual images and animations along with text. Slideshows can also become more dynamic with the incorporation of motion through transition effects and custom animations. PowerPoint allows instructors to import movies and sounds, thus presenting students with both auditory as well as visual stimulus. This multifaceted approach to instruction meets the needs of a greater number of learning styles (Levasseur and Sawyer

2006). In addition, more engaging presentations have been shown to grab students' interest more, helping them to pay more attention in class and recall information better (Grabe 2000). Where studies suggest that students begin to lose attention roughly 10 to 18 min into class (Johnstone and Percival 1976), anything that can keep their attention longer would be beneficial. The teacher is expected to use different techniques, methods and media to facilitate learning in the classroom (Nkweke, Dirisu & Umesi, nd). According to Efebo (1996) when lectures are augmented by examples, questions, demonstrations, and visual presentation, teaching becomes more appropriate.

Maliki, Ngban & Ibu, (2009) reported that educational institutions in the urban share common features of learning impediments such as reading retardation, high absenteeism, drug abuse, students vandalism, and apathy. These vices as well as overcrowding account for the causes of poor performance in the urban school as compared to schools in the rural areas. Many parents believe that the academic performance in urban schools is poor compared with academic performance of students in rural schools and therefore enroll their wards in the rural schools for Senior School Certificate Examinations (SSCE). It appears most of the public secondary schools cannot compete favorably with Government Colleges (State Unity colleges) in terms of students academic performance as a result of their inefficiency (Yusuf & Adigun, 2010). However, in contrast, Obot (1991) disagreed on this view. He maintained that schools in the urban are well staffed, and with good facilities. Hence these factors induce better performance in the urban than the rural areas. Some studies have examined location planning and their attendance consequence on examined performance of students in various states of the Federation. According to Mbaekwe (1986), the studies were intended to assist education authorities of various states to decide where a particular type of school should be located; the size of a school in each location; whether a new school should be built or otherwise among others. Yusuf & Adigun (2010) reported that rural school were inferior and lacking in the range of facilities with high staff turnover and suffered from lack of continuity in their curriculum.

Researchers have observed that students' academic performance is becoming worse in public secondary schools. Many parents prefer to enroll their children in Government Colleges where better academic performance is guaranteed for their children (Yusuf & Adigun, 2010). Thus, in the seventies and eighties, it was common to see headlines as 'Crisis Hits Private School' or "College in Crises" West (1982) reported that private schools were those days in financial trouble. However Washington Post (1981) reported contrary to this view when it ran the story concluding that private

schools are more integrated than public schools and that private school produce better cognitive outcomes even as they control for student quality.

Statement of the Problem

The School curriculum over the years has been delivered mechanically or by rote learning, which makes instruction teacher-centered. Hardly can vital abstract contents be effectively communicated to the learners theoretically. They need to be taught using relevant materials. The teacher and his/her method of teaching may have been a major source of student's poor academic performance. Research indicates that students prefer Power-Point type of presentations to presentations from transparencies (Cassady, 1998; Perry & Perry, 1998; Susskind & Gurien, 1999; West, 1997). Unfortunately, information on whether computer power-point presentations improve student performance is much less clear on the basis of the controversial findings on the influence of school type and location on students' academic performance in the literature, the present study will ascertain whether school type and location will significantly influence Primary school students' Understanding of Basic Technology Taught using Power-Point presentation in Bauchi State.

Purpose of the Study

The broad objective of this study is to assess the level of understanding of basic technology in our primary schools based on school type and location. Specifically, this study sought to achieve the following objectives:

- i) Determine the level of understanding of Basic Technology concepts using power-point in Private and Public Primary School of Bauchi state.
- ii) Determine the level of understanding of Basic Technology concepts using power-point in Urban and Rural Primary School of Bauchi state.

Research Questions

The following research question has been designed for the research work to be carried out effectively.

- (i) What is the level of understanding of Basic Technology concept using Power-Point in Private and Public Primary Schools of Bauchi state?
- (ii) What are the levels of understanding of Basic Technology concept using Power-Point in Urban and Rural Primary Schools of Bauchi state?

Research hypotheses

Ho₁ There is no significant variation in pupil's level of understanding of Basic Technology concept

using Power-Point in Private and Public Primary Schools of Bauchi state.

Ho₂ There is no significant variation in pupil's level of understanding of Basic Technology concept using Power-Point in Urban and Rural Primary Schools of Bauchi state.

Methodology

The study adopted a quasi-experimental research design in carrying out the investigation. The population for the study consisted of all the primary school pupils in Bauchi state, Nigeria. A sample of One Hundred and Twenty (120) pupils' was selected through random sampling technique from the four selected Primary Schools in the study area. Ten pupils were randomly selected from primary 3, 5 and 6 in the selected primary school, making Thirty (30) pupils from each primary school among the selected schools. The instrument for data collection was an objective test. The test consisted of seven sections containing a total of fifty (50) items administered to determine the understanding of basic Introductory Technology by Primary school pupils in different types of primary schools in different locations. The treatment was given using a Digital Glossary of Basic Technology Terms adopted from Martin and Lewis (2011). The Digital Glossary of Basic Technology Terms was a list and images of terminologies relating to Basic Technology which was compiled by searching various sources such as the Internet, books, journals, newspapers, magazines and other print-based materials. Where such images were not available from these sources, the life photographs of these items were used in the glossary. The validity and the reliability of the instrument were determined by the developers and it was found to be valid and reliable. A pre-test was administered before the treatment. The objective of the pre-test was to ascertain the entry behavior of pupil's in basic technology before the treatment. After the pre-test, the pupils were subjected to the treatment. The treatment was a DVD power-point presentation of the Digital Glossary of Terms in Basic Technology. The treatment lasted for two weeks. After the treatment, the post-test was administered. The researcher collected the data with the help of 3 other research assistants. The scores were obtained from the post-test were analyzed to determine pupils' achievement score in Basic Technology using descriptive statistic and a One-Way ANOVA was also used to test the Hypothesis.

Results

Research Question One

What are the levels of understanding of Basic Technology based on School Type in the primary schools of Bauchi state?

Table 1: Descriptive Statistics of Pupils score on Basic Technology from Private and Public Primary Schools in Bauchi state

Variable	Mean	SE Mean	Minimum	Q1	Median	Q3	Maximum
Private	62.29	1.24	46.00	58.50	62.33	67.50	73.33
Public	53.96	2.17	30.00	43.50	54.83	63.50	72.00

Table one shows that the mean scores for private primary school 62.29% is higher than public primary schools 53.96% in Bauchi state with 1.24 and 2.17 standard error of the mean. The minimum score obtained by the pupils was 46% in private primary schools and 30% in public primary schools and the maximum score was 73.33% and 72% for private and public primary schools respectively.

One-quarter (Q1) or 25% of the pupils' in private primary schools scored 58.5% while in public primary schools the pupils scored 43.5%. Half (median) or 50% of the pupils from private and

public primary schools scored 62.33% and 54.83% respectively. Third-quarter (Q3) or 75% of the pupils' scored 67.5% and 63.5% for private and public primary schools respectively. Both private and public primary schools pupils had a maximum score of 73.33% and 72% respectively.

Research Question Two

What are the levels of understanding of Basic Technology based on School Location in the primary schools of Bauchi state?

Table 2: Descriptive Statistics of Pupils score on Basic Technology from Urban and Rural Primary Schools in Bauchi State

Variable	Mean	SE Mean	Minimum	Q1	Median	Q3	Maximum
Urban	60.58	1.13	48.00	56.75	61.75	65.50	70.00
Rural	45.53	1.79	24.00	39.50	46.00	52.00	70.00

Table two shows that the mean scores for urban and rural primary schools in the Bauchi state were 60.58% and 45.53% respectively with 1.13 and 1.79 standard error of the mean. The minimum score obtained for urban and rural primary schools were 48% and 24% respectively, while the maximum scores was 70% for both urban and rural schools.

First-quarter (Q1) or 25% of the pupils' in private and public primary schools scored 56.75% and 40% respectively. Half (median) or 50% from private and public primary schools scored 61.75% and 46%

respectively. Third-quarter (Q3) or 75% of the pupils' scored 65.5% and 52% for urban and rural primary schools in the Bauchi state. Both urban and rural primary schools in the Bauchi state had a maximum of 70% score respectively.

Hypothesis 1

There is no significant variation in pupil's level of understanding of Basic Technology concept using Power-Point in Private and Public Primary Schools of Bauchi state.

Table 3a: One-way ANOVA for Pupil's Score from Private and Public Schools in Bauchi state

Source	DF	SS	MS	F	P
Factor	1	1041.7	1041.7	11.16	0.001
Error	58	5411.9	93.3		
Total	59	6453.5			

Table 3b: Grouping Information Using Turkey Method

	N	Mean	Grouping
Private	30	62.289	A
Public	30	53.956	B

Means that do not share a letter are significantly different.

The one-way ANOVA result for pupils' scores in private and public primary schools in Bauchi state revealed a significant difference at ($P < 0.01$) as shown in Table 3a. The Tukey comparison test which is a least significant difference test shows that the mean score for private primary schools was 62.30% and that of public primary school was 53.96%. This indicates that the mean score for private primary

school scores was higher and significantly different than that of public schools.

Hypothesis 2

There is no significant variation in pupil's level of understanding of Basic Technology concept using Power-Point in Urban and Rural Primary Schools of Bauchi state.

Table 4a: One-way ANOVA for Pupil's Score from Urban and Rural Schools in the Study Area

Source	DF	SS	MS	F	P
Factor	1	3397.5	3397.5	50.81	0.000
Error	58		3878.5	66.9	
Total	59		7276.0		

Table 4b: Grouping Information Using Turkey Method

	N	Mean	Grouping
Urban	30	60.583	A
Rural	30	45.533	B

Means that do not share a letter are significantly different.

Table 4a shows that the one-way ANOVA result for pupils' scores revealed a significant difference between the performance of urban and rural primary schools at ($P < 0.001$). The Tukey comparison test shows that the mean score for urban primary schools was 60.58% and that of rural primary schools was 45.53% as shown in Table 4b. This indicates that the mean score for urban primary schools was higher and significantly different than that of rural primary schools.

Findings of the Study

1. The performance of pupils' taught Basic Technology using Power-point in private primary school is higher than public primary schools in Bauchi state.
2. The performance of pupils' taught Basic Technology using Power-point in urban primary school is higher than rural primary schools in Bauchi state.
3. There is a significant difference in the performance of pupils' taught Basic Technology using Power-point between private and public primary schools in Bauchi state.
4. There is a significant difference in the performance of pupils' taught Basic Technology using Power-point between urban and rural primary schools in Bauchi state.

Discussion of Findings

The findings of the study revealed that the performance of pupils' taught Basic Technology using Power-point in private primary school is higher than public primary schools in Bauchi state. This is because private schools are more integrated than public schools and private schools produce better cognitive outcomes even as they control for student quality. Ajayi (1999) in his own study revealed that school type makes a difference in students' academic performance. This finding was supported by Maliki, Ngban & Ibu (2009) who reported that students from private schools performed better than those from public schools. This result also agrees with that reported by Washington Post (1981) that private schools have been found to be

better than public as the private schools are more integrated than public schools and that private schools produce better cognitive outcomes just as they control for student quality. Zimmerman (2000) also reported that students' academic performance depends on numbers of different factors which include school type and school location.

The findings of the study revealed that the performance of pupils' taught Basic Technology using Power-point in urban primary school is higher than rural primary schools in Bauchi state. This may be due to the fact that schools in the urban are well staffed, and with good facilities. Hence these factors induce better performance in the urban than the rural areas (Maliki, Ngban & Ibu, 2009). This finding was supported by Zimmerman (2000) who revealed that students' academic performance depends on numbers of different factors which include school type and school location. Obot (1991) also reported that students from urban schools performed better than those from rural schools. His reasons were that in urban schools students are exposed to good study habits, they are highly motivated to study with conducive learning environment; hence these factors encourage the students from urban schools to perform better than those from rural schools of Bauchi state.

The findings of the study revealed that there is a significant difference in the performance of pupils' taught Basic Technology using Power-point between private and public primary schools in Bauchi state. Yusuf & Adegun (2010) reported that student's level of performance is with statistically significant difference, linked to their gender, grade level, school location, school type, school sex and socio economic background.

The finding of the study revealed that there is a significant difference in the performance of pupils' taught Basic Technology using Power-point between urban and rural primary schools in Bauchi state. This may be due to the fact that rural schools were inferior and lacking in the range of facilities with low staff turnover and suffered from lack of continuity in their curriculum. This finding was supported by Obe (1984) who reported a significant difference in rural-urban

academic performance of 480 primary six school finalist on the aptitude subtests of the National Common Entrance Examination into Secondary Schools. He concluded that children from urban schools were superior to their rural counterparts. Owoeye (2002) holds similar view as Obe that there was a significant difference between academic performance of students in rural and urban area in public examinations. On the contrary Ajayi and Ogunyemi (1990) and Gana (1997) in their different studies on the relationship between academic performance and school location revealed that, there was no significant difference between academic performance of students in urban and rural schools. Also, in his study Ajayi (1999) found out that there was no significant difference between students' academic achievement of rural and urban secondary school students. Adeyemi (2011) also reported that there was a significant relationship between school location and students' academic performance in the Junior Secondary Certificate (JSC) examination in Ondo and Ekiti States, Nigeria.

Conclusions

Multi Media equipment particularly Power-point, when used in instructional delivery process, motivates student's interest to learn and have positive effects on their academic performance particularly students from Urban Private Primary schools.

Recommendations

Based on the finding and conclusion of the study, the following recommendations are hereby offered:

1. Government should procure Multi Media devices particularly Power-point and distribute to Primary schools in Bauchi state.
2. Teachers should de-emphasize the use of chalk-talk method of instructional delivery particularly for Basic Technology since that method is obsolete and do not encourage learning of Technology related courses bearing in mind that we are now in information technology age.
3. Teachers should frequently use Multi Media during instructional development particularly Power-point, especially when it is inevitable
4. Government should provide primary schools with electrical power supply or stand-by generators to aid the use of Multi Media equipment particularly in the rural area.
5. Primary school teachers should be innovative and use modern Multi Media equipment during instructional delivery in order to motivate student's interest in learning, support and reinforce learning, accommodate individual learner's peculiarities, increase student's access to learning, provide students with multiple channels of communication, encourage mastery learning and so on
6. Occasionally, the School authorities should invite specialists (educational technologists, instructional material technicians, computer experts, etc.) to assist the teachers with their Multi Media packages that are relevant to the subject.

References

- Adebayo, F. A. (2001). *School Climate and Students' Academic Performance in Secondary Schools, Ekiti State Nigeria*. Unpublished PhD Dissertation. University of Ado –Ekiti, Nigeria.
- Adeyemi, T.O. (2011). A Comparative Study of Students' Academic Performance in Public Examinations in Secondary Schools in Ondo and Ekiti States, Nigeria. *Current Research Journal of Economic Theory*. 3(2): 36-42.
- Ajayi, I. A. (1999). *Unit Cost of Secondary Education and Students' Academic Achievement in Ondo State Nigeria (1991 – 1995)*. Ph. D Dissertation. University of Ibadan, Ibadan.
- Ajayi, K. & Ogunyemi, B. (1990). The relationship between instructional resources and socio-economic status in selected population of high school. *Dissertation Abstract International*, 25(2): 22-23.
- Bartsch, R. A., & Cobern, K. M. (2003). Effectiveness of PowerPoint presentations in lectures. *Computers & Education*, 41(1), 77–86.
- Berk, R. A. (2011). Research on PowerPoint: From basic features to multimedia. *International Journal of Technology in Teaching and Learning*, 7(1), 24-35.
- Cassady, J. C. (1998). Student and instructor perceptions of the efficacy of computer aided lectures in undergraduate university courses. *Journal of Educational Computing Research*, 19,175–189.
- Efebo, A. E. (1996). Choosing and Using Methods of Teaching. *Journal of Technical and Science Education*. 5(1), 104-111.
- Elliot, S. N., Kratochiwill, T. R., Cook, J. L. and Travers, J. F. (2001). *Educational Psychology: Effective Teaching. Effective Learning* (3rd Edition). New York: McGraw Hill Book Co.
- Gana, E. S. (1997). *Effects of Using Visual Designed Training Model on the Learning of Mathematics at J.S.S*. Unpublished PhD Thesis. University of Ibadan, Ibadan.
- Grabe, M. E. (2000). Packaging Television News: The Effects of Tabloid on Information Processing and Evaluative Responses. *Journal of Broadcasting and Electronic Media*. 44, 581.
- Johnstone, A. H. and Percival, F. (1976). Attention Breaks in Lectures. *Education in Chemistry*, 13, 49.
- Kellerman, A. (2004). Multimedia Technology Education. Retrieved on 12 February, 2012 from <http://www.suite101.com/articjeetm/multimediaeducation111014>.
- Levasseur, D. G. & Sawyer, J. K. (2006). Pedagogy meets PowerPoint: A research review of the effects of computer-generated slides in the classroom. *The Review of Communication*, 6, 101–123.
- Maliki, A. E., Ngban, A. N. & Ibu, J. E. (2009). Analysis of Students' Performance in Junior Secondary School Mathematics Examination in Bayelsa State of Nigeria. *Studies Home Communicating Science*, 3(2):131-134.
- Martin, S. and Lewis, D. (2011). Production of a Digital Glossary of Terms DVD for Enhancing the Understanding and Appreciation of Technology Education among Primary School Students in Jamaica. An Unpublished Research Project Submitted in Partial Fulfillment of the Requirement for Bachelor Degree in Industrial Technology. Faculty of Education and Liberal Studies, School of Technical and Vocational Education, University of Technology, Jamaica.
- Mayer, R. E. (2002). *Multimedia Learning*. Cambridge, U. K: Cambridge University Press.
- Mbaekwe, F. E. (1986). *Location and Resource Factors in the Development of the Nigerian Army School 1980 – 1984*. Unpublished PhD Thesis. University of Ibadan, Ibadan.
- Moreno, R., & Mayer, R. E. (2000). A coherence effect in multimedia learning: The case for minimizing irrelevant sounds in the design of multimedia instructional messages. *Journal of Educational Psychology*, 92(1), 117–125.
- Nkweke, O. C., Dirisu, C. N. G. & Umesi N. (n.d). Effects of Synchronized Multimedia on Motivation and Academic Performance of Students in Biology. Proceedings of the 1st International Technology, Education and Environment Conference. African Society for Scientific Research (ASSR). Co-Published By: Human Resource Management Academic Research Society.

- Nkweke, O. C. (2010). Effect of Synchronized Multimedia on Academic Performance in English Language of UBE secondary schools in Port Harcourt Metropolis. Unpublished PhD Thesis. Uniport.
- Obe, E. O. (1984). Urban-rural and sex difference in scholastic aptitude on primary school finalist in Lagos state. *Education and Development*, 41(2): 123-134.
- Obot, C. S. (1991). *Influence of School Factors and Quality of Education in Nigeria: A Case Study of Akwa Ibom State*. Unpublished M.Ed. Thesis. Faculty of Education, University of Uyo.
- Ogwo, B. A. (2004). Functional Vocational Education in Nigeria Public Schools; Examining Some Policy Paradigms. In C. U. Uzodinma, (Ed) *Functionality of Education in Nigeria; Issues, Problems and Concern*. Enugu: The Academic Forum for the Interdisciplinary Discourses (TAFID).
- Owoeye, J. S. (2000). *The Effect of Integration of Location, Facilities and Class Size on Academic Achievement of Secondary School Students' in Ekiti State, Nigeria*. Ph.D. thesis, Unpublished. University of Ibadan, Ibadan.
- Perry, T. & Perry, L. A. (1998). University students' attitudes towards multimedia presentations. *British Journal of Educational Technology*. 29, 375-377.
- Rieber, L. P. (1990). Animation in Computer Based Instruction. *Educational Technology Research and Development*. 38, 79.
- Schraw, G. (1998). Processing and recall deference amongst educative details. *Journal of Educational Psychology*, 90, 3-12.
- Scott, T., Miller, S. T. & James, R. (2011). The Effect of Animations within PowerPoint Presentations on Learning Introductory Astronomy. *Astronomy Education Review*. A lively electronic compendium of research, news, resources, and opinion. The American Astronomical Society. Retrieved on 24th March, 2012 from <http://scitation.aip.org>.
- Susskind, J. & Gurien, R. A. (1999). Do computer generated presentations influence psychology students' learning and motivation to succeed? Poster session presented at the annual convention of the American Psychological Society, Denver, CO.
- Tandi, C. M. (2009). *Planning and Educational Development in Human Society*. London: Studio Vista.
- Washington Post (1981). Private high schools are better than public. *Study Concludes*, 1: 13. Washington.
- West, D. C. (1982). How endangered are small colleges? *Educational Record*, 63(4): 17-21.
- West, R. L. (1997). Multimedia presentations in large classes: a field experiment. Paper presented at the Annual Convention of the American Psychological Society, Washington, DC.
- Yusuf, M. A. & Adegun, J. T. (2010). The Influence of School Sex, Location and Type on Students' Academic Performance. *International Journal of Education and Science*, 2(2): 81-85 (2010).
- Zimmerman, B. J. (2000). Attaining self regulation. A social cognitive perspective. In: M. Bockeaerts, P. R. Pintrich, M. Zeider, (Eds.): *Handbook of Self Regulation*. San Diego: Academic Press, pp. 13-39.