EFFECT OF POWERPOINT PRESENTATION ON STUDENTS' PSYCHOMOTOR ACHIEVEMENT AND RETENTION IN AUTO-MECHANICS TRADE IN OYO STATE TECHNICAL COLLEGES

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Abstract
The study investigated the effect of powerpoint presentation on the students' psychomotor achievement and retention in auto-mechanics trade in technical colleges. The study was conducted in Oyo state. Two research questions and two hypotheses guided the study. Quasi experimental design was used for the study. The sample size for this study consisted of 63 participants. A multi stage sampling technique was used for the allocation of school for the study. The study compared Powerpoint presentations to the use of Conventional teaching method on "Braking System". Auto-Mechanics Skill Performance Test (AMSPT) and Psychomotor "On the Spot" Rating Scale were the main instruments for data collection. AMSPT was reshuffled and used for retention test. AMSPT consisted of standardized items adopted from the past NABTEB question papers and requires no face validation while content validity was conducted on the two instruments by 3 experts and two Auto-Mechanics teachers. Inter-rater reliability strength of Psychomotor "On the Spot" Rating Scale was determined using Kendall's coefficient of Concordance which yielded ($\overline{W}$ =0.8735)*. Research questions were analyzed using Mean while the null hypotheses were tested at 0.05 level of significance using ANCOVA statistics. The findings of the study indicated that Powerpoint presentations was found to be more effective in helping students and are responsible for the skill performance and retention observed. Based on the findings of this research, it was recommended among others, the adoption of Powerpoint presentations as an instructional strategy for enhancing students' psychomotor achievement and retention in Nigerian technical colleges.*

Key words: Powerpoint presentations, Auto-mechanics trade, Psychomotor achievement, Psychomotor retention, Technical colleges Multimedia and Videodisc.

Introduction

There are a growing number of voices asserting the value of Information and Communication Technology (ICT) as the technological phenomenon to revolutionize education and training. Today, computer technologies are reported to have significantly altered the education landscape (Johnassen, Carr & Yueh, 2003) and as such have encouraged the use of these technologies for instructional delivery. Abd-el-Aziz and Adio (2013) and Asogwa (2011) however identified Microsoft Powerpoint otherwise known as Powerpoint which is a sub-set of Information and Communication Technology (ICT), a programme developed by Microsoft as one of the technologies that could be used to support students' learning. Powerpoint is an application programme of presentation that is found in Microsoft office (El-Ikhan, 2010). It is a method of presenting information using electronic format (McDonald, 2008). According to Asogwa (2011), Powerpoint is a software programme mainly

used for enhancing oral presentations and to keep the audience focused on the content of the subject. This is so because it consists of individual pages or slides that allow the user to present the key phrases of his messages that include only important information (Tuscaloosa City Schools, The College of Education and The University of Albama, 2002). It therefore implies that Powerpoint presentation is mostly used to display the essential details point by point to the viewer (Asogwa, 2011). Asogwa added that Powerpoint presentations displayed on a computer could be better projected for larger audience using a Liquid Crystal Display (LCD) projector. It can therefore be inferred from the foregoing that Powerpoint presentation could be used in the classroom as a means of instructional delivery by combining computers and digital projectors for illustrating a lesson.

McDonald (2008) further asserts that students tend to enjoy Powerpoint presentations because the students' attentions are greatly captured especially when multimedia resources are added to illustrate the text in a lesson. The use of multimedia resource in Microsoft Powerpoint presentations makes it possible to provide a much richer visual presentations consisting of multi-colour texts, graphics, pictures and video that combine variety of other media stored on a video clips, such as full-motion video, readily accessible for viewing in order to help comprehend the concepts at focus. Udofia and Udofia (2013) reported that video arouse students' interest together with the dynamic and rich information that it offers. The quality picture and flexibility makes the use of video particularly attractive. By so doing, the quality of presentations is improved when the powerpoint is used to play the video clips and in turns stimulate the entire senses of the students thus ensuring the success of the presentation.

Learning is facilitated when all senses of the learner are active at the point of receiving instruction because the new information is conveyed with ease through the sensory receptors (that is, ears, eyes, nose and skin) of the brain (Abd-el-Aziz, 2013). Udofia and Udofia submit that any computer-based instruction via video is stimulating, promotes the use of students' visual senses and also makes them participate in various activities. Chien, Yu-Hua and Ford (1997) added that when multimedia resources are incorporated with any computer-based instruction and used as a learning medium, such medium are known to have positive effects on students learning and retention. Abd-el-Aziz (2013a) equally explained that combining multimedia resources especially video with powerpoint presentation has proven to be effective as other computer approaches in education.

Research findings further unveiled the advantages of powerpoint presentation which includes assisting students in learning and recalling learning materials through video or audio-visual and contextual features (Abd-el-Aziz & Adio, 2013; Asogwa, 2011). Video enhances learning and that video can be engaging, entertaining and provoking (Abd-el-Aziz, 2013). Abd-el-Aziz further reported that video clips can be of great assistance in facilitating teacher's work in the classroom. These being the case, the use of Powerpoint presentations in which video clips are included can be regarded as a good instructional medium and a key technology for facilitating effective teaching-learning process. Hence, it would not be out of place to explore Powerpoint presentation as an instructional medium for supporting psychomotor learning and retention in the field of Auto-mechanics trade in technical colleges.

Auto-Mechanics trade is a mechanical trade offered as Motor Vehicle Mechanics work trade in Nigeria Technical Colleges (Federal Republic of Nigeria, 2004). Motor Vehicle Mechanics work trade in Nigerian technical college education was planned to produce craftsmen and master craftsmen who should be competent and skillful to carryout routine services and repair of all types of vehicles (National Business and Technical Examination Board (NABTEB), 2004). The trades involve repairs and maintenance of brake, transmission, engine, fuel, cooling and lubrication system of a vehicle. An auto mechanics craftsman is expected to test, diagnose, service and completely repair any fault relating to the conventional automobile assembly main units and systems to the manufacturers' specifications (NABTEB, 2006). Therefore, utilization of Powerpoint presentation to play video clips for engaging and supporting these practical activities in Nigerian technical colleges is advocated by this study for enhancing the students' psychomotor achievement and retention.

The "psychomotor domain" measures the skill performance of the learner and performance test are used to assess the attainment of the objective in psychomotor domain (Okoro, 2002). He further pointed out that practical tests are best for the assessment of the psychomotor skill. This is so, because the performance required will involve manipulation of objects, tools, supplies or equipment. Okoro further explains that the criteria for achievement of psychomotor outcomes will relate to the actual performance or the finished product and to the necessary level of performance. In view of the above, students' psychomotor achievement is the translation of the student's performance in practical test into scores or marks. Meanwhile, learning is to acquisition as memory is to retention. According to Noble (2013) and Jennifer (2012), psychomotor retention scores indicate the percentage or degree of originally learned skill that is remembered or recalled as a function of elapsed time.

Noble explains that much of the knowledge and skills learned on a training event is lost very quickly unless it is put into use straightaway on a day-to-day basis. Leonard and Martin (2007) and Noble (2013) added that motor memory may be viewed as a phenomenon of persistence, while forgetting is a case of inconsistence. Yeung, Okamoto, Soar, & Perkins, (2011) admit that in psychomotor learning, non-verbal actions are more often over learned and are less susceptible to proactive interference (that is, competition arising from things learned in the past) and as such accounted for its greater retention. Distinctions between immediate, short-term, and long-term memory are also less prominent in studies of motor learning. This is not to say that motor skills are unforgettable (Noble, 2013; Yeung, Okamoto, Soar, & Perkins, 2011; Leonard & Martin, 2007); studies of short-term memory suggest that psychomotor forgetting can be swift indeed.

Regardless of theoretical differences, however, psychologists generally agree that psychomotor behaviour is best remembered (and least forgotten) when over learning is high, interference is low, reinforcing feedback is optimal, and interpolated activities are unrelated to the task being learned (Noble, 2013; Yeung, Okamoto, Soar, & Perkins, 2011). Time is less important in the degradation of memory than are the events that fill the time. Since it is presumed that Powerpoint presentations could assist students to learn, it is equally important to determine its ability to enforce learning retention (that is, the transfer of skills learnt and/or retention of skills). The implication of these is that evaluation needs to extend beyond post test for a consideration of individual students in terms of their ability to generalize and transfer skills (Rohrer, 2004; Simeon, 1998). Hence, the use of

Powerpoint presentations (Moursund, 2006) may have an implication, which is worth exploring as a prerequisite to support teaching and learning of practical activities especially in the field of auto mechanics trade in technical colleges.

Abd-el-Aziz and Adio (2012) and Asogwa (2011) reported Powerpoint presentation to be facilitative in cognitive achievement in Auto-mechanics trade and Christian religion knowledge respectively. Would the pattern of achievements be the same for the students' psychomotor performance in auto-mechanics trades in Nigerian technical colleges if they learnt with Micosoft Powerpoint presentation. Auto-mechanics trade in Nigerian technical colleges is a subject in which the students have shown low achievements in psychomotor performance tests (National Business and Technical Examination Board (NABTEB), 2004). The situation raises doubts on the efficacy of the existing instructional approaches to improve students' psychomotor performance. This is informed by the fact that student's performance rests on the type of instructional strategies adopted by the teachers (Owosho, 2009).

However, searching for a more effective approach for teaching and learning auto-mechanics trade that will guarantee optimal psychomotor learning has persisted over years. A lot has been done to improve students' psychomotor performance in technical colleges in Nigeria. In spite of that, students continue to perform poorly in public practical examination (NABTEB, 2006). The prevalence use of "talk and chalk" teaching method which appears to activate rote-memorization of knowledge (Asogwa, 2011) may have contributed to this ineffective teaching. So far there has been little or no investigation into the use of powerpoint presentation for supporting students' psychomotor learning in a subject like auto-mechanics trade in technical colleges. More importantly, attention is being shifted globally to the new trend of Computer-Based Instruction such as powerpoint presentation in teaching and learning process which many experts believed to be the skills needed in the twenty-first century and as such should not be left to chance in Nigerian technical colleges. This in the main aroused the interest of the researcher to investigate the effect of powerpoint presentations on the students' psychomotor performance and retention in auto-mechanics trades in technical colleges.

Purpose of the Study

The main purpose of the study was to investigate the effect of powerpoint presentation on students' psychomotor achievement and retention in auto-mechanics trades students in technical colleges in Oyo state. Specifically, the study sought to

(i) Find out effect of powerpoint presentations on students' psychomotor achievement in auto-mechanics trade students in technical colleges
(ii) Find out effect of powerpoint presentations on students' psychomotor retention in auto-mechanics trade students in technical colleges

Research Questions

The following research questions guided the study:

(i) What is the effect of powerpoint presentation on students' psychomotor achievement in auto-mechanics trade?
(ii) What is the effect of powerpoint presentation on students' psychomotor retention in auto-mechanics trade?

Hypotheses

The following hypotheses were formulated at 0.05 level of significance t to guide the study of guide the study:

Ho_1: There is no significant difference between the mean scores of experimental group and control group in the psychomotor achievement of students in Auto-mechanics trade programmes in technical college.

Ho_1: There is no significant difference between the mean scores of experimental group and control group in the psychomotor retention of students in Auto-mechanics trade programmes in technical college.

Methodology

The study adopted quasi-experimental design. The design was considered the most appropriate for this study as intact classes were used. The design was modified for this study by adding retention test. The design was represented thus:

E	O_1	X	O_2	Y	O_3
C	O_1	--	O_1	Y	O_3

Where, E = Experimental Group;
C = Control Group;
O_1 = Pretest;
X = Powepoint Instruction;
-- = Conventional Instruction;
O_2 = Posttest;
Y = Delay period of three weeks after posttest;
O_3 = Retention test

The study was conducted in Government Science and Technical Colleges, Oyo and Government Science and Technical College, Ibadan in Oyo state. The population of the study comprised of all 189 NTC II Motor Vehicle Mechanic Work students in Oyo state. The students' population consisted of 2010/2011 session obtained from Oyo state board of technical education. The choice of NTC II Motor Vehicle Mechanic Work students was to ensure that students used for the study are already familiar with the course.

The sample size for this study consisted of 63 participants from the two technical colleges in Oyo state. A multi-stage sampling technique was used. At the first stage, purposive sampling technique was used to select three schools that have computer facilities and at least a projector out of five schools. Thereafter, two schools were drawn from three schools purposively selected through random sampling. In the last stage, one school was assigned to the experimental and the other to the control group through balloting. Intact class in each school was used.

The instrument used for collection of data consisted of Auto-Mechanics Skill Performance Test (AMSPT) and Auto Mechanics Psychomotor "On the spot" Rating Scale. Auto-Mechanics Skill Performance Test (AMSPT) items were adopted from the past NABTEB practical question papers and designed for measuring students' psychomotor performance in Auto – Mechanics. More so, Auto

Mechanics Psychomotor "On the spot" Rating Scale was used by the auto mechanic teachers for the assessment of the subjects. The instrument consists of sixty items grouped into 12 unit areas with 5 items under each group. Each of the items were rated on a 5- point rating scale (Great extent = 5; To an extent = 4; Somewhat extent= 3; A little extent = 2; and Not at all = 1).

The items in the Auto-Mechanics Skill Performance Test (AMSPT) consisted of standardized questions adopted from the past NABTEB practical question papers. As such, AMSPT requires no face validation. Meanwhile, face validity was conducted on Auto Mechanics Psychomotor "On the spot" Rating Scale by two experts and three teachers in the field of auto mechanics. Content validity of the items was established by given the Auto-Mechanics Psychomotor Achievement test; Auto Mechanics Psychomotor "On the spot" Rating Scale; and their respective table of specifications to three experts and two Auto-Mechanics teachers from the Colleges of Education. Modifications were made based on the comments of the Validates. AMSPT was trial tested on a sample of NTC III students in a government technical college, Ogbomosho, a similar technical college to those used for the treatment in Oyo state. Three raters who are graduate Auto–Mechanics teachers were made to assess ten students in a practical class attending to AMSPT, Auto Mechanics Psychomotor "On the spot" Rating Scale was the basic instrument used for assessment. The degree of Raters or Judges Concordance was assessed using Kendall's coefficient of concordance. The concordance strength of the instrument was found to be high ($\overline{W}$ = 0.8735) and considered good enough to be accepted as reliable.

The researcher developed two lesson plans for the purpose of this study. The first lesson plan consisted of powerpoint presentation, while the other lesson plan composed of conventional lesson plan. The pretest was administered on both experimental and control groups to draw a baseline for data generated prior to the commencement of the experiment. Experimental group was taught using powerpoint presentations while the control group was taught using conventional method. The treatment lasted for a period of eight weeks. Auto-mechanics teachers in each school that participated in the study were used as research assistants. At the completion of the treatment, posttest was administered on the students. A delayed period of three weeks was observed after posttest before the retention test was administered on the same students who were the subjects of the study. The same instrument that is, AMSPT that was initially used for pretest was reshuffled or re-arranged in order to make the test look different and was administered on the subjects for post-test and retention test.

Mean scores were used to answer the research questions. A group that had a posttest score higher than the other was deemed to have performed better than the other. Hypotheses were analyzed at .05 level of significance using Analysis of Covariance (ANCOVA) statistics. Null hypotheses were rejected when the value of sig. of F is less than 0.05 ($p > .05$), otherwise ($p < .05$), the null hypotheses was upheld.

Results

Research Question 1: What is the effect of powerpoint presentation on students' psychomotor achievement in auto-mechanics trade?

Table 1: Pretest and Post test Mean scores and Standard deviations of the experimental and control in psychomotor achievement of students

Psychomotor Achievement						
		Pretest		Post-test		
Group	N	Mean	SD	Mean	SD	Mean Gain
Experimental	30	6.5758	4.7555	41.8678	9.6874	35.292
Control	33	6.2350	4.8745	33.2311	7.1758	26.9961

Table 1 revealed that the experimental group obtained a pretest mean score of 6.5758 and a post test mean score of 41.8678 while the control group obtained a pretest mean score of 6.2350 and a post test mean score of 33.2311. More so, the results from the table unraveled that post test-post test mean gain of 8.2959 was recorded in favour of experimental group. The result implies that students in experimental group performed better than those in control group.

Research Question 2: What is the effect of powerpoint presentation on students' psychomotor retention in auto-mechanics trade?

Table 2: Pretest and post test mean scores and standard deviations of the experimental and control in psychomotor retention of students

Psychomotor Retention						
		Pretest		Post-test		
Group	N	Mean	SD	Mean	SD	Mean Gain
Experimental	30	6.5758	4.7555	41.9950	9.9754	35.4192
Control	33	6.2350	4.8745	31.4923	7.0244	25.2573

Table 2 revealed that the experimental group obtained a pretest mean score of 7.5758 and a post test mean score of 34.8788 while the control group obtained a pretest mean score of 7.0000 and a post test mean score of 26.2308. More so, the results from the table revealed that post test-post test mean gain of 10.1619 was recorded in favour of experimental group. The result implies that students in experimental group performed better than those in control group.

Hypotheses 1: There is no significant difference between the mean scores of experimental group and control group in the psychomotor achievement of students in Auto-mechanics trade in technical college.

Table 3: Summary of Analysis of Covariance (ANCOVA) of students' psychomotor achievement scores in auto- mechanics based on modes of instruction

Source	Type III Sum of Square	df	Mean Square	F	Sig of F
Correct Model	2857.473[a]	2	2879.414	51.205	0.000
Intercept	29360.065	1	29360.065	99.425	0.000
Pretest	2789.729	1	2789.729	49.425	0.003
Group	1260.072	1	1260.072	43.049	0.000
Error	3880.048	60	56.233		
Total	70017.000	63			

Corrected Total	9638.875	62

*Significance at Sig of F < 0.05

The data presented in Table 3 indicates that F value of 43.049 is significance at **.**000 which is less than **.**05. This implies that null hypothesis of no significant difference between the mean scores of experimental group and control group in the psychomotor achievement scores of students in Auto-mechanics trade in technical college is rejected. Hence, there is significant difference between the mean scores of experimental group and control group in the psychomotor achievement of students in Auto-mechanics trade in technical college.

Hypotheses 2: There is no significant difference between the mean scores of experimental group and control group in the psychomotor retention of students in Auto-mechanics trade in technical college.

Table 4: Summary of Analysis of Covariance (ANCOVA) of students' psychomotor retention scores in auto- mechanics based on modes of instruction

Source	Type III Sum of Square	df	Mean Square	F	Sig of F
Correct Model	6858.787[a]	2	2879.414	72.213	0.000
Intercept	5165.975	1	5165.975	98.529	0.000
Pretest	2971.637	1	2971.637	53.744	0.000
Group	2245.495	1	2245.495	35.435*	0.000
Error	3285.777	60	60.133		
Total	6997.000	63			
Corrected Total	9896.709	62			

*Significance at Sig of F < 0.05

The data presented in Table 4 indicates that F value of 35.435 is significance at **.**000 which is less than **.**05. This implies that null hypothesis of no significant difference between the mean scores of experimental group and control group in the psychomotor retention of students in Auto-mechanics trade in technical college is rejected. Hence, there is significant difference between the mean scores of experimental group and control group in the psychomotor retention of students in Auto-mechanics trade in technical college.

Discussion of the Results

The results presented in Table 1 and 2 establishes the potency of the use of powerpoint presentation as a significant factor for enhancing students psychomotor achievement and retention. The results in Table 1 indicated that the mean score of students in experimental group who received powerpoint presentation higher than students in control group who received conventional teaching

method. The result further corroborated in Table 3 where the F value of 43.049 was significant at 0.000, which is less than 0.05. There is therefore, a significant difference ($p < 0.05$) between the mean scores of experimental group and control group in the Psychomotor achievement of students in Auto-mechanics trade in technical college. This is in line with the findings of Jennifer (2012) who evaluated two instructional approaches on the retention of cardioplumonary resuscitation knowledge and psychomotor skills of registered nurses. Asogwa (2011), Lowry (1999) and Rankin and Hoaas (2001) also determined the effect of Powerpoint presentations instruction on students' cognitive achievement. Their findings indicated that students who received powerpoint instruction performed better than those who received conventional method of teaching.

The results in Table 2 indicates that the mean score of students in experimental group who received powerpoint presentation was higher than students in control group who received conventional teaching method. The result was further supported in Table 4 where the F value of 35.435 was significant at .005, which is less than 0.05. There is therefore, a significant difference ($p < 0.05$) between the mean scores of Experimental group and Control group in the psychomotor retention of students in Auto-mechanics trade in technical college. The findings by Jennifer (2012) who evaluated two instructional approaches on the retention of cardioplumonary resuscitation knowledge and psychomotor skills of registered nurses fell in line with the findings of this study. More so, Owosho (2009) researched on the effect of Constructivist Instructional Approach on Achievement and Retention of Auto-Mechanics Students in Technical colleges. The findings of the study indicated that students in the experimental group performed better than those in the control group. As such, this type of instructional method employed in teaching a subject instructional medium is a powerful factor for the enhancement of students' cognitive retention.

Conclusion

It can be concluded from the findings of the study that students performed better and have higher psychomotor achievement and retention under PowerPoint presentations than under conventional teaching method. It could therefore be inferred that instructional medium such as powerpoint presentations should be explored to enhance students psychomotor achievement and retention in Auto-Mechanics trade in technical colleges in Oyo state.

Recommendations

The following recommendations were made:

(i) Teachers especially those teaching Auto-Mechanics and other vocational and technical subjects should adopt powerpoint presentations and other ICT instructional strategy to enhance students' psychomotor achievements and retention in technical colleges.

(ii) Government should provide computers, projectors and other facilities needed in technical colleges to encourage and facilitate the use of PowerPoint presentations in technical colleges.

(iii) Curriculum planners should incorporate the use of PowerPoint presentations in teaching Auto-Mechanics and other vocational subjects.

(iv) Seminars, conferences and workshops should be organized by ministries of education and related government agencies to enlighten auto-mechanics and other vocational and technical teachers and also improve their knowledge and skills on the use of PowerPoint presentations

and other ICT instructional medium as found in this study to be effective in enhancing students' psychomotor achievement and retention in technical colleges.

References

Abd-El-Aziz, A. A. (2013). *Development and validation of auto-mechanics intelligent tutor for teaching auto-mechanics concepts in technical colleges.* Unpublished Ph.D. dissertation. Department of Vocational Teacher Education, University of Nigeria, Nsukka.

Abd-El-Aziz, A. A. (2013a). Effect of interactive multimedia instruction on student's cognitive achievement and retention in auto-mechanics trades: towards adaptive and interactive learning environment. *Conference Proceeding of the 1st International Conference of School of Technology Education (STE), Federal University of Technology*, Minna. King James Prints

Abd-El-Aziz, A. A. & Adio, T. A. (2013). Effect of PowerPoint presentations on the students' cognitive achievement and retention in automobile trades in Oyo state. *Journal of Science, Technology, Mathematics and Education (JOSTMED), 9 (2), 242 – 253*

Asogwa, U. D. (2011). Effect of PowerPoint presentations on secondary school student's achievement in Christian Religious Knowledge. *International Journal of Education Research, 11 (1), 22 – 32.*

Chen, S. Y., Yu-Hua, C. S. & Ford, N. J. (1997). *Towards adaptive information systems: Individual differences and hypermedia.* Retrieved on May 6, 2007 from http: information.net/ir/32/paper 37. html.

El-Ikhan, K. K. (2010). *The advantages and disadvantages of teaching with PowerPoint.* Retrieved Sept 5, 2012 from http://www.penalido.wordpress.com/theadvantages.

Federal Republic of Nigeria (2004). *National policy on education* (Revised), Lagos: Federal Ministry of Information printing Division

Jennifer, M. W. (2012). *Evaluation of two instructional approaches on the retention of cardioplumonary resuscitation knowledge and psychomotor skills of registered Nurses.* Retrieved November 20, 2013 from http://books.google.com.ng/books/about/ Evaluation_of_Two_Instructional_Approach.html?id=1FNbHQAACAAJ&redir_esc=y

Johnassen, D. H., Carr, C., & Yueh, H. P. (2003). Computers as mind tools for engaging learners in Critical Thinking. *Tech Trends, 43(2), 24- 32*. Retreived on May 15, 2008 from http://www.amazon.com/computers-Mindtools-schoolsEngaging-critical/dp/ 0130807095

Leonard, B. & Martin, L. (2007). Literature review on skill fade. *Human Factors Integration Defence Technology Centre (HFIDTC/2/WP10.3/2, Version No. 1/ 25).* Retrieved November 20, 2013 from http://www.hfidtc.com/research/training/training- reports/phase-2/2-10-3-2-skill-fade.pdf

Lowry, R. B. (1999). *Electronics presentations of lectures: Effect upon students performance.* University Chemistry Education.

McDonald, C. (2008). *Powerpoint in the classroom: Students of all ages can create multimedia presentation using Microsoft PowerPoint* Retrieved Sept 5, 2012 from http://www.actden.com/pp/

Moursund, D. (2006). *Brief introduction to educational implications of Artificial Intelligence.* Retrieved on September 29, 2007 from http://www.darkwing.uoregon.edu/~Moursund/dave/index.html

National Business and Technical Examination Board (2004). *Examiner's examination report*. Benin: Festas Printing press

National Business and Technical Examination Board (2006). *Examiner's examination report*. Benin: Festas Printing press

Noble, C. E. (2013). *Generalization and transfer*. Encyclopædia Britannica, Inc. Retrieved 18th November, 2013 from http://www.britannica.com/EBchecked/topic/48176/psychomotor psychomotor-learning/70183/Generalization-and-transfer

Okoro, O. M. (2002). *Measurement and evaluation in education*. Anambra Pacific publishers Ltd.

Owosho, J. O. (2009). Effect of the constructivist instructional approach on achievement and retention of auto-mechanics students in technical colleges. (Unpublished Ph.D. Dissertation): Department of Vocational Teacher Education. University of Nigeria, Nuskka.

Rankin, E. L. & Hoaas, D. J. (2001). The use of PowerPoint and students performance. *Atlantic International Journal 29, 113*. Retrieved 18th November, 2013 from http ://www.economicsnetwork.ac.uk/iree/v7n2/editorial.htm

Rohrer, M. (2004). Artificial intelligence in education. In. B. Hoffman (Ed), *Encyclopedia of educational technology*. Retrieved on September 30, 2007 from http://www.khoaanh.hcmnp.edu.Vn/print.php?sid

Simon, H. (1998). Artificial intelligence, education and music: The use of artificial intelligence to encourage and facilitate music composition by novices. *Centre for Information*. Retrieved on February 6, 2008 from http://www.mcs.open.ac.uk./sh2/ Simon% 20Holland % 20PhD. Pdf.

Tuscaloosa City Schools, The College of Education and The University of Albama (2002). *Using Powerpoint in the classroom.* Retrieved Sept 5, 2012 from http://www.online.tusc.k12.al.us/

Udofia, N. A. & Udofia, A. E. (2013). Project and e-learning teaching methods and students' skill acquisition in electrical installation work in technical colleges in Akwan Ibom State. *Academic Journal of Interdisciplinary Studies*, 2 (2), *105 - 111*. Retrieved 18th November, 2013 from http://www.google.com.ng/url?sa=t&rct=j&q=&esrc=s&source= web&cd=1&ved=0CDwQFjAA&url=http%3A%2F%2Fwww.mcser.org%2Fjournal%2Findex.php%2Fajis%2Farticle%2Fdownload%2F368%2F384&ei=yq-UUvqbDIOO0AW68 YGoCQ&usg=AFQjCNFk01AFv9pnaMbOCaGNjtpEsdA-3g&bvm=bv.57155469,d.d2k

Yeung, J., Okamoto, D., Soar, J., & Perkins, G. D. (2011). AED training and its impact on skill acquisition, retention and performance – A systematic review of alternative training

methods. *Official Journal of European Resuscitation Council Volume, 83 (6), 657 – 664.* Retrieved 18th November, 2013 from http://www.ncbi.nlm.nih.gov/pubmed/21458137