



Effect of Cooperative, Experiential and Role-Play Teaching Method on Students Academic Achievement in Teaching Automobile Body Building

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ABSTRACT

The researcher work looked into the Effect of Cooperative, Experiential and Role-Play Teaching Method on Students Academic Achievement in Teaching Automobile Body Building. The researchers used one hypothesis. The population consists of 17 students in automobile unit in Federal Science and Technical College, Ahoada. Randomized three group post-test controls experimental design was used for this study. Students were randomly assigned to three groups (i.e group A, B and C). Experimental group A consist of 6 students and were taught automobile body building using cooperative learning strategy, while experimental group B consist of 5 students which were taught automobile body building using experiential learning strategy. Control group C also consist of 6 students taught auto-body building technology using role-play teaching method. Automobile Body Building Test (ABBT) instrument was developed by the researchers and used for the study. The instrument consists of 15 objective questions with four response options (i.e. a, b, c, d). The instrument was subjected to face validation by an expert in automobile unit in Government Technical College, Ahoada. The researchers administer the test item to 6 students offering automobile trade at NTC2 level operating with the same curriculum of the treatment group. The result of the pilot study was computed using Kuder-Richardson Formula 20 to obtain a reliability coefficient of 0.84. Analysis of variance (ANOVA) was used to analyze the research question and hypothesis respectively. Result obtain from null hypothesis showed that there is no significant difference between students taught automobile body building using cooperative learning strategy, experiential learning strategy and role-play teaching strategy as F-calculated value of 0.01 was less than F-critical value of 3.74 at 0.05 level of significance. Therefore, it was recommended that teachers should apply cooperative, experiential and role-play learning strategy in teaching automobile body building technology in technical schools.

Keywords: Cooperative Learning Strategy, Experiential Learning Strategy, Role-Play Teaching Method, Academic Achievement & Automobile Body Building

INTRODUCTION

Buildings are generally used as covering or accommodating structures. Building or edifice is a structure with a roof and a wall standing or less permanently erected. Buildings come in variety of sizes, shapes and functions (Max & David, 2002). The concept of building involves the principle of designing in engineering discipline. Architecture and civil engineering is one of the professions that focus more on building development. Aside these professions, other discipline like electrical technology, marine

engineering, automobile engineering, chemical engineering and so on, can also be involved in building construction.

The automobile body building is a specialize area that deals with construction and production of automobile parts. In the decade before the Great Depression, a revolution in automobile body construction took place. Sheet steel or aluminum, sometimes fabric, clad over an ash-wood frame was still the popular technique of constructing tourer bodies (Peter, 2006). The decline in production of automobile industries in Nigeria is becoming alarming, because in the past 20years production rate in the six established Automobile industries has fallen below expectation. Such that 80% of the established Automobile industries has folded up; the only existing Automobile industry out of the six that was established between 70s and 80s popularly known as (PAN) Peugeot Automobile Nigeria Limited that has a statistic production of 264 cars per day in the 80s has fallen to 22 cars per day as at 2011, (Abati 2009).

In Nigerian technical schools, automobile is treated as a trade subject. It comprises of engine repairs, maintenance, auto body buildings, auto-mobile electrical/electronic installations repairs and so on. Automobile trade is a practical oriented discipline that requires special teaching techniques and method in instructional delivery. Some common teaching methods that may be suitable in learning this trade are lecture, group project method, experiential learning, cooperative teaching method, role-play teaching method, discussion teaching method and so on.

Cooperative learning is an educational approach which aims to organize classroom activities into academic and social learning experiences. In cooperative learning strategy, students must work in groups to complete tasks collectively toward academic goals (Johnson, 2009). Unlike individual learning, which can be competitive in nature, students learning cooperatively can capitalize on one another's resources and skill (Gilles & Adrian, 2003).

Experiential learning according to Wurdinger & Carlson (2010), is any learning situation that supports students in applying their knowledge and conceptual understanding to real-world problems or situations where the instructor directs and facilitates learning. Experiential learning creates a background where students are confronted with unfamiliar situations and tasks in a real- world context that may provide positive feedback (Ambrose, 2010).

In the role play teaching method, students are presented with a real or artificial environment and they are exposed with some kind of case or situation where roles can be assumed (Warren, 2002). It is a spontaneous human interaction involving realistic human behavior under artificial or stimulated environment (Blatner, 2000). The research work therefore intent to see the effect of these teaching methods on students' academic achievement in auto body building.

Statement of Problem

The teaching and learning of automobile in Nigerian technical schools is problematic causing high failure rate. Osho (2007) reveals that auto-mechanics in the Technical Colleges is still bedeviled by a mirage of problems ranging from improper management of human and material resources, inadequate skilled and competent professionals that can assist students in learning and acquiring skills that would make them proficient in their automobile career and lack of appropriate instructional materials to facilitate learning. Also, the Federal Ministry of Education (2004) in her report on Technical Colleges revealed that students in Technical Colleges are always put-off or not interested in vocational education (in which auto-mechanics is one) because of unmotivating and unchallenging strategy and approach used by their instructors and teachers. The traditional teaching methods adopted by most teachers in teaching auto-mechanics in technical colleges do not allow teachers to adequately cater for the diverse learning styles of most students (Neekpoa, 2007). The National Business and Technical Education Board (NABTEB) May/June Chief examiners' report (2002) indicated that the shortcomings of the present teaching method partly accounted for the poor performance of students in auto-mechanics technology in the National Technical Certificate Examination in recent years. Therefore there is a need to test new teaching methods to see if students' performance can improve in auto-mobile technology.

Purpose of the Study

This research work seeks to determine the difference in academic performance of students taught automobile body building using cooperative learning strategy, experiential learning strategy and role play teaching strategy in Rivers State Technical Schools.

Hypothesis

The null hypothesis was tested at 0.05 level of significance.

HO₁: There is no significant difference in academic performance of students taught automobile body building using cooperative learning strategy, experiential learning strategy and role play teaching strategy in Rivers State Technical Schools.

METHODOLOGY

The researchers adopted randomized three group post-test controls experimental design. The Students were randomly assigned to three groups (i.e group A, B and C) by the research assistant. Experimental group A consist of 6 students and were taught automobile body building using cooperative learning strategy, while experimental group B consist of 5 students which were taught automobile body building using experiential learning strategy. Control group C also consist of 6 students taught auto-body building technology using role-play teaching method.

The researchers developed a test instrument titled ‘Automobile Body Building Test’ (ABBT). The instrument was administered to the experimental and control group used for the treatment. ABBT item consists of 15 objective questions with four response options (i.e. a, b, c, d). The instrument was subjected to face validation by an expert in automobile unit in Government Technical College, Ahoada. The experts checked the language structure used by the researcher. They also checked if the questions and topics are in line with the subject content of automobile body building as recommended by NABTEB.

To check for ABBT reliability, the researchers administer the test item to 6 students offering automobile trade at NTC2 level operating with the same curriculum in Government Technical College, Port Harcourt. The result of the pilot study was computed using Kuder-Richardson Formula 20 to obtain a reliability coefficient of 0.84 which was considered adequate for the study.

Score generated from post-test was used as source of data collection. Analysis of variance (ANOVA) was used to analyze the research hypothesis.

RESULTS

Hypothesis

There is no significant difference in academic performance of students taught automobile body building using cooperative learning strategy, experiential learning strategy and role play teaching strategy in Rivers State Technical Schools.

Table 1: Analysis of Variance on the difference in academic performance of students taught automobile body building using cooperative learning strategy, experiential learning strategy and role play teaching strategy in Rivers State Technical Schools.

Source of variation	Df	Sum of squares(SS)	Mean square	F-cal.	F-tab.	Significance	Decision
Between Groups	2	47.87	23.93	0.01	3.74	No significance	Accept
Within Groups	14	5933.3	423.8				
Total	16	5981.2					

Table 1 above show that there is no significant difference in academic performance of students taught automobile body building using cooperative learning strategy, experiential learning strategy and role play

teaching strategy in Rivers State Technical Schools. This is evident as calculated value of 0.01 is less than critical or tabulated value of 3.74, at 0.05 level of significance.

DISCUSSION OF FINDINGS

The study has revealed that there is no significant difference in academic performance of students taught automobile body building using cooperative learning strategy, experiential learning strategy and role play teaching strategy in Rivers State Technical Schools. This is to say that any of the teaching method applied in teaching automobile body building can be accepted. Chris (2015) stated that by engaging students in formal, guided, authentic, real-world experiences, individuals can deepen their knowledge through repeatedly action. Cooperative Learning helps to raise achievement of students and build positive relationships among students (Istudy, 2014). Finally in learning with role play teaching method, students' interest is raised and interpersonal relationship between students can be developed. Any of the three teaching method applied in teaching automobile body building can improve students' academic achievement as no seem better than the other.

CONCLUSION

Based on the findings of the study, it can be concluded that there is no significant difference in academic performance of students taught automobile body building using cooperative learning strategy, experiential learning strategy and role play teaching strategy in Rivers State Technical Schools. This implies that none of teaching method is significantly different in achievement in automobile body building.

RECOMMENDATIONS

It is recommended that teachers should apply cooperative, experiential and role-play learning strategy in teaching automobile body building technology in technical schools.

REFERENCES

- Abati, R. (2009). Pan and A Troubled Automotive Industry. <http://nigeriavillagesquare.com>
- Ambrose, et al. (2010). *How learning Works: 7 Research-Based Principles for Smart Teaching*. San Francisco, C.A.
- Blatner, A. (2000). *Foundations of Psychodrama*. New York: Springer.
- Chris, S. (2015). Experiential Learning. Retrieved from <http://www.ActiveClass.com>
- Federal Republic of Nigeria (2004). *National Policy on Education*. Lagos: NERDC Press.
- Gilles, R. M., & Adrian, F. (2003). *Cooperative Learning: The Social and Intellectual Outcomes of Learning in Groups*. London: Farmer Press.
- Istudy, (2014). Benefits of cooperative learning strategy. Retrieved from <http://www.Istudy.com>.
- Johnson, D.W., (2009). An Educational Psychology Success Story: Social Independence Theory and Cooperative Learning. Retrieved from www.EducationalResearcher.com.
- Max, J., E. & David, M. M., (2002). Geographical Information Science; Second International Conference. Retrieved from www.Giscience.com.
- National Business and Technical Education Board (2002). Report on performance of students in NTC examination.
- Neekpoa, A. (2007). The effect of cognitive apprenticeship instructional method on the achievement of auto-mechanics students in technical colleges in Rivers State. *Unpublished M.ED Thesis*. University of Nigeria. Nsukka.
- Osho, S. O. (2007). *The future of Auto-mechanics work Students in Nigerian Technical Colleges*. A paper presented at a Seminar organized by the Department of Technical Education, Tai Solarin University of Education, Ijagun. On 28th April.
- Peter P., (2006). Auto Body Construction. www.EnjoyClassicCars.com
- Warren, B. (2002). *Creating a theatre in your classroom & Community*. Concordia, Ontario, Canada: Captus Press.
- Wurdinger, D.D. & Carlson, J.A. (2010). Teaching for Experiential Learning: Five Approaches that work. Retrieved from <http://www.ExperientialTeaching.com>.