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The Effect of Corporative Learning on Students' Academic Performance in Basic Electrical and Electronics Practical

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Abstract: This study examined the effect of corporate learning on the academic performance of students in Basic Electrical and Electronics Practical technology. Two groups were used for the study; both were given the same treatment, but at different levels. Group A consisted of 5 persons, while group B, the control group consisted of 20 persons. Quasi-experimental design was used. With pre-test and post-test equivalent groups design, the study found significant difference between the small sized group and the large size grouped method.

Key words: Corporative learning, academic performance, electrical and electronics practical, Nigeria

INTRODUCTION

The bed rock of any developed nation is technology and for any developing nation to meet up with these daily challenges of technology she has to train her citizens technologically. Basic electrical and electronic practical is a general course for all 200 level engineering technology students and seek to give basic electrical and electronics practical skill knowledge to students in the general field of engineering technology. For an individual to study electrical and electronics technology at the university and lack basic electrical practical knowledge of it, call for questions on the competency, or standard of the institution he/she attended.

Technology is all about creativity and technical know how (Kraiger and Salas, 1993). The process of learning skill oriented courses may result in cognitive, affective and skill-based outcomes. Researchers have also found out that other conditions been equal more information takes place if it is received simultaneously in three modalities (touching, vision and hearing), rather than in a single modality. Further more, learning is enhanced when materials are organized and the organization is evident to the students; that is proper practical class. It is therefore, the concern of all the personnel, professionals concern in imparting these skills both the academic and non academic (technical staff) in the field to find out how these practical skills can be taught, if the aims and objectives of the Federal Republic of Nigeria (FRN, 2004) on this issue, to train man power, personnel who will be self reliance is to be actualized.

Federal Republic of Nigeria (FRN, 2004) defined technology education as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. Studies in the psychology of learning in Microsoft Corporation (2003), says that learning is based on perception the process by which the senses gain information from its environment, Corporate or grouping as a teaching learning method is way of organizing or sharing students into groups whereby they learn together, each group is taught differently at different time interval (Burton *et al*., 2003).

Statement of problem: The need and relevance of practical skills acquisition cannot be over emphasize but observation has shown that majority of Nigerian graduates lack practical skills and application. To duly acquire this knowledge, requires time, individual participation, interest and constant practice. The problem now is considering the fewness of the available instructional materials and the students' population. Hence, this study examined the effect of corporate teaching and leaning method in basic electrical and electronics practical course on the academic achievement of 200 level engineering and technology students in the faculty of engineering and technology, Ambrose Alli University, ekpoma, Edo state.

MATERIALS AND METHODS

The study make used of quasi-experimental design, since it has to use pre-test and post-test equivalent group design. The researcher designed randomized pre-test and post-test for both groups; practical experiment was carried out based on some selected topics in their basic electrical and electronics laboratory practical instructional manual.

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RESULTS

Research question 1: Is there any significant difference in the post-test academic mean achievement scores of students in 5 persons per group and those students in 20 persons per group in basic electrical and electronics Practical Technology?

HO_1: There is no significant difference in the post test academic mean achievement scores of students in 5 persons per group and those students in 20 persons per group in basic electrical and electronics Practical Technology.

For each test, statistics formula was used to determine the mean scores, variance, the standard deviation and were recorded as shown in the Table 1. And a t-test was used to determine the level of significant difference between the groups' performance in the post-test mean achievement scores in basic electrical and electronics Practical Technology. The calculated t-value and the critical t-values were compared at .05 percentage level of significance (2-tailed).

Table 1 had shown a significant difference between the mean academic scores of the experimental group (A) students and those in the control group (B) in basic electrical and electronics Practical. Looking at the standard t-distribution (table D) for a degree of freedom (df) of 78, at a significant level of 0.05 with two tailed test has a critical t-value of 1.960. The obtained t-value of 2.218 is greater than the value required to for the acceptance of HO_1 therefore, the null hypothesis is rejected and in other words there is significant difference between the mean academic performances of the two groups as indicated in Table 1.

Research question 2: Is there any significant difference in the pretest and post test mean achievement scores for students grouped 5 persons per group in basic electrical and electronics practical course?

HO_2: There is no significant difference between the post test and pre-test mean academic achievement scores of students exposed to 5 person per group in basic electrical and electronics practical course.

Using the scores of the students in group A (5 persons per group) HO_2 was analyzed using statistics formula. For the two tests administered two different scores were recorded for the same group, for each test the mean scores, variance as well as the standard deviation were recorded as shown in Table 2. And a t-test was used to determine the level of significant difference between the students in group A performance in the post-test and pre-test mean achievement scores. The calculated t-value and the critical t-values were compared at 0.05 percentage level of significance (2-tailed).

Table 2 also shown significant differences between the mean academic achievement scores of the experimental group A students (5 persons each in a group) in the post-test and pre-test scores in basic electrical and electronics practical course. From the standard t-distribution (table D) for a degree of freedom (df) of 78, at a significant level of 0.05 with two-tailed test has a critical t-value of 1.960, since the computed t-value must be equal or exceed a critical t-value of 1.960 in order to reject the null hypothesis, the calculated t-value of 2.380 is greater than the value required for the acceptance of HO_2 therefore, the null hypothesis is rejected, in other words there is significant difference between the academic performances of group A students, the experimental group in the post-test and pre-test in basic electrical and electronics practical course as indicated in Table 2.

Research question 3: Is there any significant difference in post test mean academic achievement scores and pre-test mean academic achievement scores for students exposed to 20 persons per group grouping method in basic electrical and electronics practical technology?

HO_3: There is no significant difference between the post test and pre-test mean academic achievement scores of students exposed to 20 person per group in basic electrical and electronics practical course.

Hypothesis three was analyzed using the performance of students in the control group B (20 persons each in a group). Two test were administered to them pre-test before the treatment and the post test after the treatment and both scores were recorded for the same group as shown in Table 3. For each test the mean scores, variance as well as the standard deviation were calculated and recorded as shown in Table 3. And a t-test was used to determine the level of significant difference between the students in group B performance in the post-test and pre-test mean achievement scores. The calculated t-value and the critical t-values were compared at 0.05 percentage level of significance (2-tailed).

Table 3 indicates a no significant difference between the mean academic achievement scores of students exposed to large size group of 20 persons per group grouping method in basic electrical and electronics practical course. looking at the standard t-distribution (table D) for a degree of freedom (df) of 78, at a significant level of 0.05 with two-tailed test has a critical t-value of 1.960, since the computed t-valuemust be equal or exceed a critical t-value of 1.960 in order to reject the null

Table 1: Difference between the mean academic achievement scores of students in the experimental group (a) and the control group (b) in the post-test in Basic Electrical and Electronics Practical Technology Achievement Test (BEPTAT)

Methods	N	Mean	Variance (S^2)	SD	df	Cal. t-value	Crt.t	Percentage level (P)
5 persons per group (A)	40	63.10	61.52	7.84	39			
20 persons per group (B)	40	58.62	57.16	7.56	39			
					78	2.218	1.960	0.05

Table 2: Difference between the mean academic achievement scores of students in the experimental group (a) in the post-test and pre- test in Basic Electrical and Electronics Practical Technology Achievement Test (BEPTAT)

Type of test	N	Mean	Variance (S^2)	SD	df	Cal .t. value	Crt.t	Percentage level (P)
Post-test	40	63.10	61.52	7.84	39			
Pre-test	40	53.05	51.75	7.1	39			
					78	2.380	1.960	0.05

Table 3: Difference between the mean academic achievement scores of students in the experimental group (b) in the post-test and pre- test in Basic Electrical and Electronics Practical Technology Achievement Test (BEPTAT)

Type of test	N	Mean	Variance (S^2)	SD	df	Cal .t. value	Crt.t	Percentage level (P)
Post-test	40	58.62	57.16	7.56	39			
Pre-test	40	56.13	54.72	7.39	39			
					78	1.368	1.960	0.05

hypothesis, the calculated t-value of 1.380 is lower than the value required for the rejection of HO_3 therefore, the null hypothesis is accepted, in other words there is no significant difference between the mean academic performances of group B students the control group in their post-test and pre-test in basic electrical and electronics practical course as indicated in Table 3.

DISCUSSION

Analysis of data collected revealed the following: That there is significant difference between the mean academic achievement of scores of students exposed to few persons of 5 in a group and the large size group of 20 persons in basic electrical and electronics practical (BEPTAT) (Table 1). The calculated t-value was 2.218 above a critical t-value of 1.960 at 0.05 level of significant. Therefore, the null hypothesis of no significant difference between the groups was rejected. This findings is really in agreement with the psychology of learning (2003), which report that learning is more meaningful if it is received simultaneously in three modalities (touching, vision and hearing), in other words group A as a result of their fewness in the group they have direct access to the instrument and the practical equipment, touch and even connect the circuit by themselves at the laboratory technologist instruction, but the control group B due to the size of their group could not have that opportunity hence, the difference in their performance.

In Table 2, it was observed that there was a significant difference between the mean academic achievement scores of students in group A in their post-test and pre-test in BEPTAT. Confirming that, they actually learn and master the skills. The calculated t-value was 2.380 higher than the critical t-value of 1.960 at 0.05 level of significant therefore, the null hypothesis is of no significant difference is rejected. The findings show that group learning is more effective when the students are few in size not more than 5 persons in a group. It has a great positive influence and contribution on the students' academic achievement as a means score of 63.1% and 53.05 for the experimental group in the post-test and pre-test are above average. The result is in disagreement with Burton several studies in (1996) which found out that no significant differences. It is in agreement with Rather Booth (1978), in Emurian and Durham (2003) suggestion that students should be given opportunity to discover, invent things by themselves and become a part of the rapid expansion of scientific and technology information.

Table 3 revealed no significant difference and that further confirmed that for true learning to actually take place, the combination of the three learning faculties of learning is needed, as stated in HO_3 the calculated t-value of 1.368 is far lower than 1.960, so the null hypothesis of no significant difference was accepted.

CONCLUSION

From the results obtained, it is of correct opinion that corporate learning method is very interesting and effective when the number of students per group is few not more than 5 persons. It was shown that there was significant difference in mean academic achievement scores of students in the experimental group of 5 people per group in the pre-test and post-test in BEPTAT. In

other words their direct contact with the practical instruments and equipment actually motivated their interest, concentration and focus for learning and as well helped their understanding.

RECOMMENDATIONS

For effective actualization of the aims and objective of the FRN (2004) the following recommendations should be duly considered:

- Provision of well equip laboratory for Electrical and electronics technology.
- Provision of well structured laboratory instructional manual for students.
- The government should provide more educational aids, human and material resources should be made available for schools.
- The students should be motivated to develop interest in technology. They should be encouraged to participate in practical class regularly.

REFERENCES

Burton, J.K., D.M. Moore and S.G. Magliaro, 1996. Behaviorism and Instructional Technology. http:// www.gwu.Edu/-tipbruner.Html., pp: 62-77.

Emurian, H.H. and A.G. Durham, 2003. Computer Based Tutoring System: A Behavioral Approach. In: Jack, J. and A. Sears (Eds.). Human-computer Interaction Handbook: Fundamentals, Evolving Technologies and Emerging Applications. Mahwah, NJ: Lawrence Erlbanm Associates Publishers, pp: 656-676.

Federal Republic of Nigeria, 2004. National Policy on Education. 4th Edn. NERDC Press 3, Jibowu Street, Yaba, Lagos-Nigeria Section 7, pp: 29-35.

Kraiger, K.F. and E. Salas, 1993. Aplication of cognitve, Skill-based and affective learning theoriers of learning out come to new methods of training evaluation. J. Applied Psychol., 78: 311-328.

Microsoft Corporation, 2003. Audio-Visual Education. Online available Microsoft Encarta.