

A Comparative Study of the Performance of Students in Technology Education Theory and Practical Subjects in Nigerian Universities

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ABSTRACT It is usually believed by most employers of labor that university graduates in practical-based programme in Nigeria lack enough practical potentials and capabilities required to contend with the demand of the labor force. This according to them is because less emphasis is placed on practices compared to their knowledge in theory during their training programmes. This study attempt to investigate the relationship between the students' theory and practical performance in Technology Education subjects of students of the Ambrose Alli University, Ekpoma. The sample consisted of 75 students. Using the Pearson Product Moment Correlation Coefficient, the Coefficient of Correlation obtained are 0.61, 0.52, 0.44, for Technical Drawing, Metal-Work Technology and Wood-Work Technology subjects respectively, as a result of which the null hypotheses were rejected. The result showed that there is a statistically significant relationship between students' theory and practical performance. Thus, the theory knowledge acquired by the students has influenced their performances in the practical exercises. In the light of this, it is suggested that more of this type of study should be done to constantly bridge the gap between theory and practice at all levels of our educational endeavor.

INTRODUCTION

The knowledge of the basic science and Technology forms the bedrock for any scientific development of all nations. This will enable individual countries to man their nations' economy so that they will no longer depend on the foreign experts and thus conserve the foreign exchange earnings. The dissemination of knowledge in the practical knowledge acquired by a student compliments the theoretical conceptualization of a particular topic in technology and other related programmes. It is disheartening to note that most practical based programmes in Nigerian universities have been taught theoretically with little or no emphasis on practical aspects of the subject. This will only produce students who are very knowledgeable in the theoretical aspect of the subject to the detriment of the practical skills required for handling such area.

Adeboye (2005) carried out a correlational study showing proficiency in English Language as a factor contributing to competency in Mathematics. Sample 1 comprises of three hundred candidates drawn by simple random selection from 1991 West Africa School Certificate published results. This was made up of fifty candidates from each sample. Also one hundred

(100) senior secondary school students made up of twenty from each selected schools for sample 2. While sample 3, comprises of two hundred respondents made up of one hundred and twenty senior secondary students, thirty senior secondary mathematics teachers and fifty mathematics students in Kwara State College of Education. Results showed that there is positive significant correlation between the grades in English Language and Mathematics at school certificate level. Also that interpretation of mathematics problem is very important in the solution of mathematics problem and that it is generally accepted that lack of proficiency in English Language is a factor contributing to the poor performance in mathematics, also observed is that students who pass the words problems are likely to pass non-word problems in mathematics.

It is generally believed that most practical based subjects in the Nigerian schools, from primary to the tertiary educational system lack the propensity to execute and teach these skills effectively as emphasis is laid on the teaching and learning of the subject through theoretical approach even when provisions like tools, equipment, facilities and workshop are provided for this purpose. The resultant effect therefore is producing learners who are only grounded in the

theoretical aspect of these subjects to the detriment of practical capabilities. This study therefore is indented to critically evaluate and find out why technical education courses that is practical based in nature, places little or no effort in the practical aspect during its teaching and learning.

It is on this basis that this research study is designed to investigate the relationship between theory and practical courses performance of students in the core Technical subjects at the Ambrose Alli University, Ekpoma. Uwaifo (2006) established that all Technical Education courses are core because they are applied and provide theoretical framework for understanding the concept in practice. The three basic Technical subjects to be used for this study are Technical Drawing, Metal-Work Technology and Wood-Work Technology. Therefore, the relationship between student's scores and performance in practical and theory in these subjects will be considered in other to determine the aspect of the subject that is more emphasized.

Hypothesis

The following hypotheses were used to direct the study.

- (a) There is no significant relationship between student's performance in practical and theory Technical Drawing.
- (b) There is no significant relationship between student's performance in practical and theory Metal-Work Technology.
- (c) There is no significant relationship between student's performance in practical and theory Wood-Work Technology.

PROCEDURE

The design of the study is a correlation research, which compares recorded scores of students in the categories of interest earlier mentioned. The design is called "expo facto" in which the researcher cannot manipulate the independent variables because their manifestation has already occurred (Kerlinger 1975). All the Technical Education students of the University in 300 and 400 levels of the 2005/2006 sessions form the sample for this study because they are few in number. The student's scores were recorded from their individual personal academic files kept at the departmental academic records office. The students' scores in these courses set out for

certification of the Bachelor certificate, for each of the three subjects were used in this study with demarcation into practical and theory categories.

RESULTS

The Pearson Project Moment Correlation Coefficient was use to find the correlation for each subjects theory and practical scores using the formula

MEXY - EXEY

$$r = \frac{NEXY - (EX)Y}{\sqrt{[NEX^2 - (EX)^2][NEY^2 - (EY)^2]}}$$

Where X = Scores in Practical Courses

Y = Scores in Theory Courses

N = No. of students multiplied by the number of Course in each Category.

Relationship between theory and practical scores

Sample size	Cal. value	Table value	Probability level
25 (Technical Drawing)	0.61(s)	0.43	0.05
25 (Metal-work Technology)	0.52 (s)	0.52	0.05
25 (Wood-work Technology)	0.44 (s)	0.31	0.05

The results show that there is a statistically significant relationship between student's theory and practical scores and performance for the three Technical subjects leading to rejection of the three null hypotheses raised above. Therefore a pass in the practical course examination predicts a pass in the theory examination.

DISCUSSION

The findings of this study may however not be surprising because, the mode of instruction and examination in the University for Practical and theory course suits the courses. The students must have learnt some theory before the practical courses are introduced. Also before the practical exercises in the semester are embarked upon, the students have been given study guides on the theory, which will help them to comprehend the practical. The practical exercises scores also serve as the continuous assessment for the final practical scores. The result is in conformity with

that of Allison (1988) who implied that as a performance of the student increases in practical work, a corresponding increment is observed in the performance of a theory knowledge acquired in related topics.

The coefficient of correlation is highest in Technical Drawing. This may be attributed to the fact that of the three Technical subjects considered, Technical Drawing is more fundamental as a common language to all the options that makes up Technical Education programme and it is offered from the first level to the final level of the programme as compared to others that may commence from the second and third levels respectively.

CONCLUSION AND SUGGESTIONS

The findings of this study are consistent with earlier findings that the performance in theory courses can be used to predict their scores in the practical courses (Allison 2007). From the findings, Nigerian universities do not place more emphasis on theory than practice. The time allocated to theory and practical during the training programme is quite adequate and utilized effectively. Other reasons may be responsible for this trend, like the provision and utilization of tools, machines, equipments and other inhibiting factor that is suggested as areas for further research. However, there is a need for more of this type of study to be conducted in the Education setting. This will enable us to be able to appraise the National University Commission's (NUC) Guidelines on bridging the gap between theory and practice.

This study could be extended to other practically oriented courses and Vocational school and centers where subjects such as Fine

Arts, Business Education, Agricultural Education, Secretarial studies, Home-Economics, Computer Education etc. where practical potentialities and propensities are taught.

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