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Correlation Between Attitude and Socio-Economic Status of Students' Performance in Computer Science

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Abstract: This research study examined a dependent relationship between students' attitude and socio-economic status performance in computer science. For the purpose of this work, 200 Junior and Secondary School students in Oredo, Egor, Ikpoba-Okha and Ovia North East Local Government Area of Edo State, Nigeria were investigated. The instruments for the data collection were students' socio-economic status questionnaire, students' attitude using computing scale and computer science performance test. A research questionnaire (Fraser's 1981) was used to collect data. The reliability of each instrument was determined using test-retest method at two weeks interval. The result shows that the reliability coefficients for students' socioeconomic status questionnaire, students' attitudes to computer science scale and computer science performance test were 0.82, 0.93 and 0.81 respectively. Three null hypotheses were used to test the relationship between students' socio-economic status, attitudes to computer science and their performance in computer science. The investigation lasted for 28 days. All the null hypotheses were rejected at 0.05 levels, this reveals that there s a dependent relationship existing between students socio-economic status, students attitudes to computer science and performance in computer science.

Keywords: Attitude, Correlation, Performance, Socio-Economic, Test-Retest

1. Introduction

Computer science is a subject discipline of its own, but it has been found to be synergic with all disciplines such as science, social sciences, technology, engineering, medicine, pharmacy, business administration, education, estate management, architecture, accountancy (Olagunju, 1991; Koleoso and Aromoro, 2000). Therefore the importance of computer science in the growth and development of any nation cannot be overemphasized. This is why computer science is now been emphasized as curriculum for students/pupils right from pre-primary to university level in Nigeria (FGN, 1998). However, the teaching and learning of computer science is not without pockets of problems. Why some students find computer science interesting, many others find it difficult to learn. Some even hate it as a subject. Those who find computer science interesting develop favourable attitudes towards it, whereas those who hate it show unfavourable or negative attitudes towards the subject.

Some of the reasons attributed to these negative attitudes are: computer science is an abstract subject, theoretical in nature, and inadequate teaching and learning equipments. The method/style employed by computer science teachers may hinder or enhance students understanding. However, if we assume that the computer science teacher is a pedagogue and the schools environment is conducive to the teaching and learning of computer science, students difficulties in learning the subject could be traced to other areas. Such areas include:

Student's attitudes, gender, location, socio-economic status, intelligence and culture. The students socio-economic status embraces parents educational status, parents occupation, parent type of residence, family size, student leisure activities and students motivation (Abitogun, 2002); Alavap, 1994; Izuagie, 1990).

On the other hand, attitude is a very strong variable in learning (Koleoso and Olasehinde, 1998). It determines the success or failure of a child in learning. Attitude is a correlation of students performance in any teaching learning subject (Koleosa and Olasehind, 1998; Akorede, 2000; Koleoso and Arimoro, 2000; Ezenbawachilo, 1994; Olowokere, 2000; Hamzat, 1998; Olasehinde, 1995 and Olagunja, 1991).

Bayaga et-al (2014) in their study 'Attitudes on Mathematics Achievement-

Factor Structure Approach' reported that the study is

important for the South African education system due to the fact that changing academic self-concept and attitude of students towards mathematics and improving the teaching procedures in the classroom are much easier to achieve than changing background factors affecting students' performance.

Cukrowska et-al (1999) reported that there is a substantial relationship between attitude and academic achievement. And that academic achievement in chemistry is more dependent on attitudes toward science than attitude of students.

The objective of this study is to examine the correlation of attitude and socio-economic status of student's performance in computer science in West Africa using Nigeria as a case study. The problems the study reach-out to solve are:

i. Is there any significant relationship between student attitude to computer science and their socio-economic status?
ii. Is there any significant correlation between students socio-economic status and their performance in computer science?
iii. Is there any significant relationship between student's attitudes to computer science and their performance in computer science?

Hypotheses: The following null hypotheses were generated for the test;

Hypothesis 1: There is no significant relationship between student's socio-economic status and their attitudes to computer science.

Hypothesis 2: There is no significant correction/relationship between students' socio-economic status and their performance in computer science.

Hypothesis 3: There is no significant relationship between students' attitudes to computer science and performance in mathematics.

2. Methodology

The population for this research study consists of junior and senior secondary school computer science students in Oredo, Egor, Ikpoba-Okha and Ovia North East students in Edo State, Nigeria. The schools were randomly chosen from the 18 local government areas of the state. On the whole eight schools were used, thus two schools from each of the local government area chosen, consisting of one junior and one senior secondary school each. And each school completed 25 questionnaires. In all a total of 200 questionnaires were used for the study.

3. Research Instruments

The mathematics/computer science related scale was an adaptation from Fraser's (1981) science-related attitude scale. There were thirty items which were sorted into three levels;

i. Students attitudes to enjoyment of computer science lesson,
ii. Students attitudes to leisure interest in computer science, and
iii. Students attitude to career interest in computer science

Each item of the questionnaire has five response options, and these are: Strongly Agree (SA), Agree (A), Not Sure (NS), Disagree (D) and Strongly Disagree (SD). For a positive item the scores for the responses are SA (5), A (4), NS (3), D (2) and SD (1), and the reverse was the case for a negative item. The maximum and minimum scores on the computer science related attitude were 150 and 30 respectively. It reliability was determined using a test-retest method within 2 weeks interval and the coefficient reliability was 0.93.

Computer science performance test: Consist of 20 multiple-choice items for junior secondary school and 20 multiple-choice items for senior secondary school based on computer science topics.

Experts in computer science, and computer education and computer science.

Performance test: Their assessments were used to produce the final draft; and it reliability test value was 0.81 using test-retest method.

Student socio-economic status questionnaire consist of 42 items base on the sub-levels of socio-economic status of students. The service of experts in sociology and education were employed to validate it, and its reliability value was 0.82 using test-retest methods.

4. Data Collection

The validated instruments were used by the researcher to collect data for testing the hypotheses of the study. The computer science teachers in the school under investigation were given the same topics extracted from the Junior and Secondary School syllabus to teach 4 weeks. Lesson notes were given to them by the researcher in order to ensure uniformity in teaching.

The computer science related attitudes scale, the students' socio-economic status questionnaire and the computer science performance test were then administered by the researcher immediately after treatment in each school.

5. Discussion

Table 1. *Shows correlation among students attitude (x) socio-economic status (y) and performance in computer science (z).*

Variables	X	Y	Z
X	1.00	0.33	0.33
Y	0.33	1.00	0.25
Z	0.30	0.25	1.00

Table 2. *Result of t-test on the relationship among students attitude (x), socio-economic status (y) and computer science performance (z).*

Hypotheses	Correlation indices (r)	N	t_e
Ho1	XY 0.33	200	4.94
Ho2	YZ 0.25	200	3.63
Ho3	XZ 0.30	200	4.43

The Pearson's product moment correlation method was used for finding the relationship among the variable of the study based on the students' scores in the questionnaire and computer science performance test. The Pearson, r obtained

for each relationship was then converted to the responding t-test using appropriate formula. Table 1 and 2 below shows the result of the three null hypotheses.

6. Ressult

As observed in table 2, the results of the analysis were significant. The three hypotheses were all rejected at 0.05 level of significance, thus in favour of the corresponding alternative hypotheses. These results confirm the findings of Abitogun (2002), Steanekamp et-al (2011), Alarape (1994) and Izuagie (1990) as far as the significant relationships between students socio-economic status and their performance in computer science on one hand and between students attitudes to computer science and their social-economic status on the other, are concerned (Koleoso and Olasehinde, 1998), Olowookere (2000), Harmzat (1998) and Arimoro.

7. Conclusion

This study offers solutions in the area of teaching and learning. Students' socio-economic status and attitudes to computer science are decisive to students' success in computer science. Teachers should be mindful of the above variable when teaching computer science. Each computer science class/lesson is heterogeneous in terms of students' socio-economic status. The teacher should take time to understand the socio-economic status of his students; he should not discriminate among them in class, but always motivate them irrespective of their socio-economic status.

The study has shown that students' attitudes to computer science are very important in learning computer science. Therefore, teacher should adopt various instructional strategies that would remove negative on unfavourable attitude to computer science. Computer science teacher should use familiar resource in the local enrolment of the students. Teachers should start from known to unknown and from concrete to abstract so as to enhance students understanding and learning of computer science. If the above approach is adopted by the teacher, could lead to optimum and maximum learning attainment on the part of the learners. Parents should purchase books and necessary learning materials for their children. They should be introduced role-model. If learners are motivated, they will be interested to learn and perform well in computer science.

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