European Journal of Education Studies
ISSN: 2501-1111
ISSN-L: 2501-1111
Available on-line at: www.oapub.org/edu

10.5281/zenodo.54841 Special Issue: African Education – Contemporary and Future Challenges

A COMPARATIVE ANALYSIS OF THE ATTITUDE OF STUDENTS TOWARDS SCIENCE AND ART COURSES

Adebule, Samuel Olufemi[i]
Faculty of Education, Ekiti State University, Ado-Ekiti, Nigeria
Omirin, Michael Sunday
Faculty of Education, Ekiti State University, Ado-Ekiti, Nigeria

Abstract:
This study did a comparative analysis of the attitude of students towards Science and Art courses. Also, a comparison of the attitude of male and female students towards Arts and Science courses was done. The population consisted of all the students of senior secondary schools from the six south-western states of Nigeria. The sample consisted of 1440 students, selected using stratified sampling technique. The instrument used was the Science-Oriented Attitudinal Scale (SOAS) adopted from Omirin (1999). The instrument was already validated by the author, with the item validity coefficients ranging between 0.31 and 0.57, and a reliability coefficient of 0.89. Two null hypotheses were generated and tested at 0.05 level of significance. The results revealed that there was a significant difference between the attitude of students towards Science and Art courses. The result further showed that the attitude of male and female students towards Science and Art courses are not different. Based on the results of this study, some recommendations were made. It was recommended that teachers should be encouraged to instil positive attitudes in students towards both Science and Art courses. Attitude and interest of students should be used as one of the yardsticks for admission into schools.

Keywords: attitude toward learning, learning performance, attitudinal scale, science courses, art courses, learning interest, positive attitude

[i] Correspondence: doctorolufemiadebule@yahoo.com

1. Introduction

Attitude is one of the greatest predictors of achievement in mathematics and other science subjects (Webb, 1977). A man's attitude towards any job or task is very important towards the successful execution or otherwise, of such as a task. If one develops a poor attitude, the project may fail, but if the attitude is positive, success is possible.

Osibodu (1981) and Ali (986) said that poor students' achievement in the school subjects is due to the negative attitude towards the subjects and lack of interest.

Oloyede (1984) and Omirin (1999) further stressed that this poor attitude contributed more than anything else to the poor performance of students in their school subjects.

Some previous studies on attitude (Grass & Postic, 1985; Titus & Terwilliger, 1990) indicated that factors such as sex and course of study also influence the attitudes of students and the way they perceive school subjects. For instance, Silverblank (1972) in his study found that high school students who are talented in science courses are less sociable, more intelligent and have positive attitude towards science courses than those talented in the languages and art courses.

Titus & Terwillger (1990) in their study on gender difference in attitudes, aptitude and achievement in a programme for mathematically talented youths, found that males were more confident than the females and that females were more ready for independent work.

Harty & Dwight (1984) and Omirin (1999) in their works on attitudes towards sciences found that male students had more positive attitude towards science courses than their female counterparts, whereas female students show more positive attitude towards the languages and art course. Boys performed better than girls in the science courses because boys exhibited a significantly more positive attitude towards science courses than girls in Nigeria (Oloyede, 1984). Hence, a school of thought believed that science courses are meant for boys and art courses for girls.

Similarly, Eckard (1995) carried out a study correlating attitudes and college majors among undergraduate women and found out that attitude is an important predictor of the chosen college subjects. This further stressed the role of attitude in choosing one's career.

From the above, it became of interest to the researchers to make a comparative analysis of the attitudes of students towards science and art courses.

2. Statement of the Problem

The findings of earlier studies on the effect of attitude on the achievement of students showed that attitude greatly affect the performance of students in their academic work. Some believed that sciences are for male students while female students are destined to go for art courses and the languages. The worries of the researcher lie in the fact that students may result into the 'law of comparative advantage' if care is not taken; that is, male students may have lukewarm attitude towards the art courses like Law and thereby turning it into a female profession. Also, female students may not care for the science courses like Medicine and Engineering, also tagging it a male profession, which should not be, hence the need for this study to compare their attitudes.

Also, attitude of students differ in relation to their sex and specialization, and such factors have been found to affect their attitudes and consequently their performance. The worries of the researchers is the fact that attitude has been found to be a contributory factor to the poor performance of students. In this study, the researchers would therefore provide answers to the following questions:

1. Will there be any difference in the attitude of students towards science and art courses?
2. Will there be any difference in the attitude of male and female students?

3. Purpose of the Study

The purpose of this study is to do a comparative analysis of the attitude of students towards science and art courses. The study also attempted to investigate the differential attitude of male and female students with respect to science and art courses.

4. Hypotheses

Two null hypotheses were generated and tested at 0.05 level of significance:

$H0_1$: There is no significant difference in the attitude of students towards the science and art courses.

$H0_2$: There is no significant difference between the attitude of male and female students.

5. Population and Sample

The population for this study was students of senior secondary schools from the south-western states of Nigeria. Both male and female students participated in the study, regardless of their religion and the class of the students.

The sample consisted of 1440 students. The students were selected using the stratified random sampling method. This technique allows for the stratification of the population. Four schools were purposively selected from each of the six (6) states in the south-western part of Nigeria and 60 students were later selected from each school.

6. Research Instrument

The research instrument for the study was a Science-Oriented Attitudinal Scale (SOAS) adopted from Omirin (1999). The instrument consisted of a list of 21-items, each suggesting how the students perceive science/art courses. The instrument was a form of close-structured questionnaire, requesting the students to say 'Yes' or 'No'. The students were instructed to respond to each of the items on the scale objectively, not minding their 'personal' bias on the statements.

7. Validation of the Instrument

The validity of the instrument was carried out by the author of the adopted scale. The item validity coefficients vary from 0.31 to 0.57, they were all significant beyond $p<0.01$ level, due to the very large number of subjects used.

Omirin (1999) also reported that the SOAS discriminates between the science and art students. The science students had a mean score of 16.2517 with a standard deviation of 3.171, while the arts students had a mean score of 7.7664 with a standard deviation of 4.737, indicating that the scale rightly differentiated between the science and art students, thereby attesting to the construct validity of the scale. Criterion-related validity was established by correlating the scale with other well-known scales. For example, the scores of the SOAS were correlated with the Thurstone's (1959) attitudinal scale, a correlation coefficient of 0.52 was obtained, which was considered high enough.

The reliability of the instrument was determined by the test-retest method and a reliability coefficient of 0.89 was obtained, which was considered high enough at 0.05 level of significance.

8. Results and Discussion

HO_1 states that there is no significant difference in the attitude of students towards the science and art courses.

To test this hypothesis, the ratings for science and art students were subjected to the student t-test at 0.05 level of significance. The result is presented on table 1 below:

Table 1: Student t-test summary table for paired sample of science and art subjects

Variable	N	Means	SD	df	t_{cal}
Science	1434	16.2517	3.171		
Art	1434	7.7664	4.737	1433	49.05

P<0.05

The result in table 1 shows that the t-calculated that the t-calculated between science and art courses was 49.05, which was greater than the t-table value of 1.645. This shows a significant result. Hence, the stated null hypothesis was rejected. This means that the attitude of students towards science and arts differ. Since higher mean score denoted higher rating and lower mean score denotes lower rating, it follows that the attitude of students towards science courses is higher than their attitude towards art courses.

This result is in agreement with the finding of Omirin (1999), who found a significant difference between science subjects and other subjects. However, this result contradicted the finding of Olarewaju (1986) in his work on attitude of students towards mathematics as he found no significant difference between the attitude of students to science and art subjects.

The result of this study may be due to the fact that students are no longer interested in reading volumes of books; instead, they prefer science subjects in which less reading of volumes is required. Also, most parents and students alike, tend to believe that science courses are superior to art courses. Hence, they tend to shift their attitude towards the science courses.

HO_2 states that there is no significant difference in the attitude of male and female students.

To test this hypothesis, the ratings for male and female in the science courses were subjected to the student t-test at 0.05 level of significance. The result is presented on table 2.

Table 2: Student t-test summary table for male and female students

Variable	N	Means	SD	df	t_{cal}
Male	795	16.2214	3.204		
Female	639	16.2895	3.131	1432	0.40

P>0.05

The result on table 2 shows that the t-calculated value for the scores of male and female students was 0.40, which was less than the t-table value of 1.645. This result is therefore not significant. Hence, the stated null hypothesis was accepted. This implies that the attitude of male and female towards science and arts courses is the same.

The findings of this study indicated that there was no significant difference in the ratings of male and female students. This result agreed with the results of Adebule (2002), Bandele (1988) and Oladunni (1995) who found no significant difference between the performance of male and female students in Mathematics achievement test and mathematical language test respectively. But the result of this finding contradicted the findings of Kolawole (1998) as they observed that boys performed better than girls in both Chemistry and Mathematics at the SSCE level in Ekiti State. Oloyede (1984) showed through a survey that males exhibit a significantly more positive attitude toward science-oriented courses than female students.

Akinlua (1987) explained that students' gender influenced the way teachers rated written performances. It was also shown that girls show superior skills in reading Law and boys are more prominent and successful in the science subjects than girls.

8. Conclusion and Recommendations

Based on the findings of this study, the following conclusion could be drawn:

Science and art students reacted to the items on the scale differently. Generally, science subjects were more relevant to the adopted scale than the art subjects.

Both male and female students shared almost the same opinions on the items on the scale; that is, the scale did not differentiate between male and female students.

Also, the following recommendations were made:

1. Teachers should be encouraged to instill positive attitudes in students towards both science and art courses, as the society cannot do without any of them.
2. Attitude and interest of students should be used as one of the requirements for admission into schools since it has been found to be a good predictor of achievement than mere results that can be got by foul means.

References

1. Adebule, S. O. (2002). Development and validation of anxiety rating scale in mathematics for Nigerian secondary school. An unpublished Ph.D. thesis; University of Ado-Ekiti, Nigeria.
2. Akinlua, A. A. (1987). Comparison of the effectiveness of programmed instruction and textbook instruction in learning secondary school mathematics. An unpublished M.A.(Ed.) thesis, University of Ife, Ile-Ife.
3. Ali, A. (1986). Implementation of science education in the National Policy on education. *Journal of Nigeria Educational Research Association (NERA)*. Benin-City.
4. Bandele, S. O. (1988). A comparative investigation of the performance of Christ's Boys' and Girls' Schools, Ado-Ekiti on standardised mathematics achievement tests. *Journal of Ondo State Mathematics Association*.
5. Eckard, J. S. (1995). Correlating attitudes and college majors among undergraduates women. An unpublished Master's Degree thesis, Chadron State College, Nebraska.
6. Harty, H. & Dwight, B. (1984). Attitudes towards science of gifted and non-gifted fifth grades. *Journal of Research in Science Teaching*. 21(5): 483—488.
7. Kolawole, E. B. (1998). Ability process dimensions of students on mathematics achievement tests. An unpublished Ph.D. thesis, Ondo State University, Ado-Ekiti.
8. Oladunni, M. O. (1995). Introduction to research methods and statistics in education. Ibadan: Tafek Publications.
9. Olarewaju, S. J. O. (1986). The attitude of secondary school students to the study of mathematics in Nigeria. *Journal of the Science Teachers' Association in Nigeria*. 14: 22—24.
10. Oloyede, O. E. (1984). Branching programmed instruction compared with other materials for learning mathematics by Nigerian secondary school students. An unpublished M.A.Ed. thesis, University of Ife, Ile-Ife.
11. Omirin, M. S. (1999). Construction and validation of science oriented attitude scale for Nigerian schools. An unpublished Ph.D. thesis; University of Ado-Ekiti, Nigeria.
12. Osibodu, B. M. (1981). Methods of teaching mathematics in the secondary schools. A paper presented at the MAN workshop, Abeokuta.
13. Silverblank, F. (1972). Responsibility, anxiety and sociability in male students talented in mathematics or English. *Educational Leadership*. 30: 41—45.

14. Titus, J. C. & Terwilliger, J. S. (1990). Gender differences in attitude, aptitude and achievement in a programme for mathematically talented youth. A paper presented at the annual meeting of the *American Educational Research Association*, Boston.
15. Webb, R. J. A. (1972). A study of the effects of anxiety and attitudes upon achievement in Doctoral Educational Statistics Courses. Doctoral dissertation, University of Southern Mississippi, 1971. *Dissertation Abstracts International*. 32: 4997—4998.