

Attitude of Science Students towards Science Teaching In Cross

River State, Nigeria

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ABSTRACT

This study was to determine the attitude of some secondary school science students towards the teaching of science in Nigeria. Two research questions guided the conduct of the work, while two null hypotheses were tested at 0.05 level of significance. The design of the work was survey, and the sample consisted of two hundred and ninety-eight students drawn from four secondary schools in Akamkpa Local Government Area of Cross River State, Nigeria. Cluster and simple random sampling techniques were used to select the sample. The data collected were analyzed using an independent t-test. Results got after data analysis showed that male students showed more positive attitudes towards the teaching of science than their female counterparts. Also, the SS III had more positive attitudes than the JS III students. The implication of this finding was that a great percentage of Nigerian women may face unemployment problem, since they may lack the requisite skill to engage in science related careers and job.

Introduction

The activities that go on in most Nigerian classrooms have remained largely what they were for the past three decades in terms of methods, and have gone down considerably in terms of quality of facilities. The teacher has continued to operate as an authority that dispenses information. The learner merely sits and answers questions when these are directed at him and perhaps takes notes, which are regurgitated at the end of a term's assessment. Science is a human enterprise primarily concerned with finding out about things in our environment. It has become an integral part of the world's culture. Even the remotest villages on earth are not devoid of the impact of science. Thus, in all areas of human endeavour, the individual comes face to face with scientific equipment and contraptions, communications equipment that demand basic scientific knowledge for their proper handling and manipulation, equipment in the home that cannot be operated without a fair degree of science training, an ever rising mountain of literature that cannot be understood without knowledge of scientific jargon or technical language, even food that can not be properly cooked or eaten without some basic science knowledge (Oguniyi, Okebukola, and Fatunwase, 2005). Adding further, Ezeife (1996) recognize the fact that, there are commonly used gadgets or equipment that would constitute a real threat to life if the user operating them is scientifically illiterate. It is therefore clear that, the human being's very existence is now largely governed by science. The present period is sometimes referred to as the 'scientific age'. Science has an important role to play in the social, economic, and political development of any nation. To Bajah (1983) the man distinction between the developed and developing countries is due to the degree of scientific development in these countries. Modern man is living in an industrialized age. An immediate consequence of this is that most of the jobs being created in

society are tied to science. Thus job seekers whose education have not adequately equipped them for jobs in these areas would surely lose out in the increasing competitive and skill-conscious labour market. It is becoming obvious in our changing technological society that the people who easily find jobs are those who possess the skills that employers are looking for.

To fit into today's world, the teaching and study of science becomes a sine qua-non. Science now play such significant roles in education and every day life that no individual who hopes to live as a productive member of modern society would avoid it. It is changing so fast that schools need to hasten their pace to catch up. One way of doing this is to teach Science to growing children to enable them develops interest in areas like compute technology.

The teaching of a particular subject for achieving a specified aim, and the competence of the learners to grasp what they are taught. Aware of the fundamental role of science in advancing and widening the horizon of scientific knowledge and in providing the groundwork for technological growth, both industrialized and developing countries seek to provide greater opportunities for the study of science by their citizens, and to make, the teaching of the subject more effective at every level of education. According to Oguniri, Okebukola and Fatwase (2005), when a student is exposed to the teaching of science early enough, science becomes to him a way of life and not something to be encountered only within the school premises. Generally, children are envious about their environment. Therefore, by exposing them to their environment through scientific enquiries, they develop the prerequisite knowledge, skills, and attitudes needed for future careers in science.

Attitude is a tendency to act towards or against something in the environment which reflects a positive or negative value (Osam, 1995). It is a pattern of thinking, responding or acting in a given set of circumstances. Allports (1983) attempts a comprehensive definition of attitude when he writes that; an attitude is a mental or neural state of readiness organized through direct experience exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related. The central feature of Allpart's definition is the idea of readiness for response. That is, an attitude is not behavior, not something that a person does, rather it is a preparation for behavior, a predisposition to respond in a particular way to the attitude object. The term attitude object according to Osam(1995) is used to include things, people, places, ideas, or situations.

Basically, there are two teaching methods in science (a) expository and (b) enquiry or discovery. By expository is meant verbal explanation or discussion. This method is sometimes referred to as lecturing. It is the most frequently used in the teaching of science. The enquiry or the discovery method deals with exposing students to actual learning materials in order to find out something about them. Through the enquiry approach, the students acquire basic scientific knowledge, skills and attitudes. The study seeks to investigate the attitude of secondary school science students towards the teaching of science using sex and class level as the determining factors.

Research Questions

Two research questions were formulated to guide the study:

- i. Is there any difference between male and female students in their attitude towards the teaching of science?
- ii. Is science students' attitudes towards science teaching influenced by class level?

Hypotheses

The following hypotheses were tested:

- i. There is no significant difference between male and female science students on their attitudes towards science teaching.
- ii. There is no significant difference between upper and lower class science students on their attitudes towards science teaching.

Method

This study was a survey research designed to collect and analyze data on science students' attitudes towards science teaching using sex and class level as determiners. The study was carried out in four secondary schools in Akamkpa Local Government Area of Cross River State. A sample of 298 science students constituted the sample of the study. This sample was gotten through simple random sampling technique by picking rapped pieces of papers containing 'Yes' or 'No'. Those who picked "Yes" were given the questionnaire to complete. The researchers developed the instrument and students from senior secondary three and junior secondary three from the four schools were given the opportunity to pick the rapped pieces of papers. The instrument consisted of a 50 item likert type attitude scale. This was divided into two categories: Section A consist of science students' demographic information like sex, class level, social economic status of parent, age, number of subjects offered, while Section B consists of science related and science teaching items. The reliability of the instrument was established by using split-half technique scores on two equivalent halves of the instrument (odd and even)

which were totaled separately and the correlation between the two halves calculated using Pearson Product Moment Coefficient formula. The data collected were analyzed.

Results

The results of the study are presented on the tables below:

Table I

An independent t-test analysis of male and female science students' attitude toward science teaching

Variable	N	X	SD	t-cal	t-crit
Male	164	55.49	23.36	3.77	1.96
Female	134	51.74	22.40		

Df = 296 $p > 0.05$

The result in Table I above shows that the calculated t-value of 3.77 was greater than the critical t-value of 1.96 at 0.05 level of significance and 296 degree of freedom. Hence, the first null hypothesis is rejected for the alternate hypothesis. This means that there is a significant difference between male and female science students in their attitudes towards the teaching of science. This is to conform with the assertion of Denga and Ali (1998), that the null hypothesis should be rejected when the calculated t-value is greater than the critical t-value.

Table II

An independent t-test analysis of SSIII and JS III science students' attitude towards science teaching

Variable	N	X	SD	t-cal	t-crit
Male	156	41.99	23.36	5.63	1.96
Female	142	37.05	16.17		

Df = 296 $p > 0.05$

In Table II above, the calculated t-value of 5.63 is greater than the critical value of 1.96. Hence, the null hypothesis two was rejected. Thus, there is a significant difference between senior secondary III science students and Junior Secondary III science students in their attitudes towards science teaching.

Discussion

The results of this study showed that there is a significant difference between male and female science students' attitude towards the teaching of science. It showed that male students developed more positive attitudes than their female counterparts. And the secondary three students responded more positively than their Junior Secondary three counterparts. This finding is in agreement with the research reports of Okeke (1986) and Ojerinde (1998) who found that male secondary school students were superior to the females in terms of science subjects. The report noted that male students' superiority in science over the female students could be attribute to sex-stereotyping which involves male and female students showing interest in subjects to the roles they are expected to fill in the society. In the light of this, Ekeh (2004) pointed out that the feelings about women's roles and marriage scare girls away from science when they regard as Masculine. These feelings inhibit girls' attitudes to science and its teaching. School factors such as differential expectations of boys and girls and discrimination in relating with students of the opposite sex by teachers were identified as major limiting factors to girls' like or dislike of science. STAN (1992) observed that most science teachers are male. They relate better with male students and go at their pace during class teaching. These male teachers have low expectation of girls, and thus help in lowering girls' curiosity, initiative and creative tendencies which are necessary for positive attitudes. Ezeife (1996) described a typical science classroom situation where girls do not ask questions and were also not asked by their teachers who concentrate more on boys. Situations such as these may lead to negative attitude among girls in science teaching.

The result also showed a difference between senior secondary three students and Junior Secondary School three students in their attitude towards science teaching. This may be attributed to the 'experience' factor. That is, the Senior Secondary three students have more experience than the Junior Secondary three students. The first group of students have spent more than five years studying in a secondary school, while the second group is therefore more exposed to the teaching of science than the second group of students. They have chosen to be science students who are about to write the final secondary school examination. The second group have not yet decided whether to take to Science or Arts. They may not be familiar with science concepts, as various school subjects are taught at different levels and in varying depths.

In the light of the above findings, if the males' superiority over their females counterparts is not checked, but allowed to spread to the tertiary level, a great percentage of women who should constitute the workforce especially in science related areas will be lost. For instance, there may be a drop in the number of trained and educated female science teachers, technologists and doctors, who could help man the various sectors of the nations' economy. Again, the women folk may have to face serious unemployment problem in future, as many of them may lack the requisite skills to engage in a wide range of careers and jobs.

Conclusion and Recommendations

People everywhere are aware of the significant role that science plays in the society. This is why science is taught right from the primary school to the university. There is need to find out the attitude of our students towards science teaching; in the light of the findings the authors of this work concluded that male students have more positive attitudes towards science teaching than their female counterparts. It is therefore recommended that secondary school teachers should make science teaching more girls' friendly by giving special attention to girls, devoting extra time for girls during the teaching of science, and by inviting experts to speak to girls on the importance of science in their lives and also to create an attractive image of woman scientist.

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