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Comparative Influence of Area of Subject Specialization and School Type on Science Teachers' Attitude Toward Teaching in Senior Secondary Schools in Ekiti State

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Abstract

Attitude is a point of view about a situation; it is a way of thinking. It is an inward feeling expressed by outward behaviour. It has implications for the learner, the teacher and the social group with which the individual learner relates. Attitudes are formed as a result of certain kinds of learning experiences or even be learned simply by following the example or opinion of a parent, teacher or friend. The objective of this study was to assess science teachers' attitude towards science teaching in senior secondary schools in Ekiti State. Specifically, the study compared the attitude of science teachers towards science teaching on the basis of their: areas of subject specialization and school type. It was a descriptive research of the survey type in which simple random sampling technique was used to select 80 science teachers from both public and private secondary schools in Ekiti State. A questionnaire instrument adapted from Attitude Scale towards Teaching Profession (ASTTP) was used for the data collection. Data description and inferential statistics (t-test and ANOVA) were used to answer the research questions and also test the hypotheses. The findings of the study showed that science teachers generally had positive attitude towards science teaching ($t = 15.31$ at $p < 0.05$). There was no significant difference in the attitude of the science teachers towards science teaching on the basis of on their areas of subject specialization. There was however a significant difference in the attitude of science teachers towards science teaching based on school type ($t = -0.99$ at $p > 0.05$). It is recommended that adequate instructional materials should be made available to science teachers to further enhance their positive attitude towards teaching. These teachers should be trained and retrained in their areas of subject specialization for an improvement in their attitude.

Key Word: Subject specialization, School type, science Teachers' attitude, science teaching, senior secondary schools

Introduction

Teachers have various roles to play in the processes of teaching and learning, most especially in teaching of science subjects. For instance, they need to be competent in their subject areas of specialization and also be able to apply different methods of teaching and strategies and understand the learning process of students (Ololube, 2009). In addition, the teachers' knowledge of the subject matter and their methods of teaching are known to be highly important in bringing about good performance among students (Shulman, 1994). Therefore, teachers who are specialists in a particular subject should normally be more effective than those who are not specialists in that particular subject. This is because; teachers are faced with problems when they venture into areas where they do not have adequate content and pedagogical knowledge preparation to establish an environment that is conducive to learning.

Teachers are regarded as the 'basic tools' in education and curriculum implementation and consequently, the quality of any nations' education

system is determined by the qualities of the teachers and their attitude to the profession (Afolabi, 2007). Teachers are invariable, role models whose behaviours are easily copied by students. What teachers like or dislike, appreciate and how they feel about their learning or studies could have a significant effect on their students. Unfortunately however, many teachers seldomly realize that how they teach, how they behave and how they interact with students will enhance their teaching. In a nutshell, teachers' attitude directly affects their students' attitudes. Teachers' attitudes are in turn, influenced by their culture and belief system and their attitude towards their students in school must be favourable enough if they are to carry students along (Standslause, Maito and Ochiel 2013).

Teacher attitudes are therefore important variables in classroom application because of the relationship between attitudes and action. Teacher attitudes are often translated into specific classroom and instructional practices which in turn affect student behavioural and learning outcomes (Cook, 2002). Abidoye (2015) observed attitude as

a response that could be either positive or negative to any situation, event or object. An individual's attitude is based on three components: cognitive, affective, and behavioural; hence, the role of the attitude of science teachers' in attracting students, and sustaining their interest in the science subjects at the senior secondary school level is of utmost importance also science teacher attitude is very important in the academic performance of students.

The concept of profession comes from a word which can be interpreted to mean 'to profess' i.e. agreeing to be bound by the principles and rules set. An individual must be a man of conviction if he is to accept the principles of what he professes. Profession involves specialized application of 'special' knowledge such that theoretical knowledge is essential to effective profession. According to Ololube (2009), pedagogical content knowledge includes, what motivates students, attitude of students towards different subjects, cognitive development and reasoning abilities of students and so on. According to him, if teaching is to be successful, the teacher must have the ideas about man and conception of knowledge and learning since teachers' ideas of man create the basis for understanding different kinds of learners.

The issue of school type and teaching has generated a lot of interest among various researchers. Evidence derived from a variety of surveys undertaken by different researchers using different tests in various parts of the world showed that the measured ability and attainment of public students are not the same with those of their private contemporaries Danmole (1998) observed that the performance of students from public schools was not adequate when compared with that of private schools. Adigun and Yusuf (2010) studied the influence of school type, sex and location on students' academic performance and found out that the level of students' academic performance was low; it was also found that school type, sex and location had no significant influence on students' academic performance.

Purpose of the Study

The main purpose of the study was to compare science teachers' attitude towards teaching in Senior Secondary Schools in Ekiti State, Nigeria on the basis of their Area of specialization and School Type.

Specifically, this study determined:

1. the attitudes of science teachers towards science teaching in Senior Secondary Schools in Ekiti State, Nigeria;

2. The attitudes of science teachers towards science teaching based on their subject areas of specialization; also
3. the attitudes of science teachers towards science teaching on the basis of school type.

Research Questions

Answers were sought for the following research questions:

1. What are the attitudes of science teachers towards science teaching in Senior Secondary Schools in Ekiti State, Nigeria?
2. What are the attitudes of science teachers towards science teaching based on their areas of subject specialization?
3. What are the attitudes of science teachers towards science teaching based on their school type?

Research Hypotheses

The following hypotheses were formulated and tested in the study:

1. Science teachers do not have positive attitude toward science teaching in Ekiti State, Nigeria.
2. There is no significant difference in the attitude of science teachers towards science teaching based on their areas of subject specialization.
3. There is no significant difference in the attitude of science teachers towards science teaching based on their school type.

Scope of the Study

The geographical coverage of the study included science teachers in all the Secondary Schools located in the Ekiti State, Nigeria. Teachers of Biology, Chemistry, Physics, Agricultural science and Mathematics were involved in the study. Eighty (80) of such science teachers were involved in the study from both public and private schools. Attitudes of the science teachers were also determined in this study with respect to teaching of the sciences.

Data Analysis and Results

Research Question 1: What is the effect of Attitude of Science Teachers' towards science teachers in Ekiti State?

Table 1:

Summary of Mean Attitudinal Score and t-test for testing Attitude of Science Teachers' towards Science Teaching in Ekiti State, Nigeria

	Number of respondent	Minimum score	Maximum score	Mean Attitudinal score	Std. Deviation	t	df	p-value
Total	80	70	99	40.50	23.24	15.59	79	0.00

Table 1 shows the number of responses of science teachers towards science teaching in senior secondary schools in Ekiti State, Nigeria. The individual attitude towards science teaching scores for all the science teachers were determined and they were valued from the highest to the lowest scorer. Scores above 40.50 were considered as positive attitude and those below 40.50 scores were negative. The total number of respondents was 80 the minimum score was 70 while the maximum score was 99.

The mean attitudinal score is 40.50. This was found to be significantly higher than the cut off score of 40.50. The attitude of science teachers towards science teaching was significantly positive

since $p\text{-value } (0.00) < 0.05$ ($t=15.59$; $df\ 79$ and $p\text{-value } 0.00$). Thus, the null hypothesis one (H_{01}) which states that 'science teachers do not have positive attitude toward science teaching in Ekiti State' was rejected. This shows that science teachers in the Ekiti State generally had positive attitude towards science teaching.

Research Question 2

What are the attitudes of science teachers towards science teaching based on areas of subject specialization?

Table 2:

Mean Attitudinal Scores of Science Teachers in Ekiti State, Nigeria based on Areas of subject Specialization

Area of Specialization	No of Respondents	Mean Attitudinal
Mathematics	16	88.75
Physics	17	83.7
Biology	16	81.81
Chemistry	16	82.06
Agric Sci.	15	84.27

Table 3:

ANOVA Table of Science Teachers in Ekiti State, Nigeria based on Areas of subject Specialization

Sources of Variance	Sum of Squares	Df	Mean	F	Sig Square
Between Areas of Subject specialization	499.15	4	124.79	3.672	0.09
Within Areas of Subject specialization	2548.84	75	33.99		
Total	3047.99	79			

The results in Table 2 and 3 reveal that there was no significant difference in the attitude of science teachers towards science teaching in senior secondary schools in Ekiti State, Nigeria based on areas of subject specialization. This is because the $p\text{-value } (0.09)$ is higher than the alpha level of 0.05. The mean scores range between 81.81 and 88.75. From Table 2 and 3, it show that there was no mean attitudinal difference based on the attitude that can be deduce that very tiny difference between their attitudinal score indicated that their difference

attitude are quiet similar. Thus, the null hypothesis 2 (H_{02}), which 'states that there is no significant difference in the attitude of science teachers towards science teaching based on subject area of specialization' is not rejected.

Research Question 3:

What are the attitudes of science teachers towards science teaching based on their school type?

Table 4:

Mean Attitudinal Scores and t-test for testing attitude of Science Teachers in Ekiti State, Nigeria based on School Type

School Type	No of respondents	Mean Attitudinal	Standard Deviation	Std. Error Mean	T	Df	p-value
Public	60	83.72	6.12	0.79	-0.99	78	0.48
Private	20	85.30	6.50	1.45			

The results in table 4 shows the mean attitudinal score and reveals that there was indeed a significant difference in the attitude of science teachers towards science teaching in senior secondary schools Ekiti State, Nigeria based on school type. The mean attitudinal score ranged between 83.72 and 85.30. The p-value (0.48) is less than 0.05 (p-value < 0.05). This is in the favour of private school science teachers because it has higher positive attitude. The null hypothesis (H_0), which states that there are no significant difference in the attitude of science teachers towards science teaching based on school type, is rejected.

Summary of Major Findings

Findings from this study as obtained from ANOVA and t-test based on the tested hypotheses can be summarized as follows:

1. Science teachers in Secondary Schools in Ekiti State generally have positive attitude towards science teaching;
2. The attitudes of Ekiti State science teachers towards science teaching based on their subject areas of specialization were not significantly different;
3. The attitude of science teachers in Ekiti State towards science teaching based on school type indicated that private schools science teachers had a more (higher) and positive attitude towards science teaching than public schools science teachers in the state. This is in favour of private school science teachers.

Discussion

It was found that the general attitude of science teachers towards science teaching in senior secondary schools in Ekiti State, Nigeria are positive based on their responses. This could be as a result of helpful behaviour, resourcefulness, enthusiasms, good method of presentation and concern for students and teachers knowledge of the subject matter and the acceptance that they are role model. This is in agreement with findings of Standslause, Maito and Ochiel (2013) who examined teachers and students attitude towards mathematics and found that mathematics teachers

had positive attitude towards mathematics teaching. Onoshakpokaiye (2011) had examined the influence of teachers' attitude on students' learning of Mathematics and reported that nature of teachers attitude is a vital force in educational effectiveness of the classroom instructional level.

It was revealed from the results of this study that there was no significant difference in the attitude of science teachers towards science teaching based on areas of subject specialization. The preceding results could be due to the fact that science teachers are satisfied with their service rules, facilities and therefore properly concentrated on academic affairs, this could have translated into better academic performance. This is in agreement with findings of Renu and Sudipa (2012) who investigated whether private school premium' was manifested in student learning outcomes. According to them, and their results indicated that standard characteristics of teachers based on areas of subject specialization do not have any significant influence on student's learning outcome. Abidoye (2015) had also assessed science teachers' attitude toward teaching in senior secondary schools in South-West, Nigeria. The findings indicated that there was no significant difference in the attitude of the science teachers towards science teaching based on their areas of subject specialization

It has been established in this study that there was a significant difference in the attitude of science teachers towards science teaching based on school type. This shows that private schools science teachers had more positive attitude toward science teaching than their counterparts in the public because they felt that is acquainted them with the wealth of knowledge in different areas of life. Since, the mean attitudinal score of private school science teachers was greater than these of public schools science teachers the former could be said have more positive than the latter.

This could be due to the fact that private schools are on profit, where the proprietors were actively monitoring teachers' works and attitude. This is in agreement with findings of Maliki, Ngban and Ibu (2009) who analyzed students'

performance in junior secondary school mathematics examination and found that students from rural schools performed better than those from urban schools. They also found that students from private schools performed better than those from public schools.

Conclusions

Based on the findings of the study, it can be concluded that science teachers in Ekiti State secondary schools generally had a positive attitude towards science teaching. The attitude of the science teachers towards science teaching based on their subject areas of specialization was not significantly different. The study also revealed that the attitudes of the science teachers in private schools are more positive than those of their counterparts in public schools.

Based on the findings of this study, it is recommended that; Adequate instructional materials should be made available to science teachers to enhance their positive attitude towards teaching. The science teachers should be trained and retrained in their areas of subject specialization for an improvement in their attitude to the teaching of the subject. Concerted efforts should also be made by governments to provide public school teachers with adequate incentives for a conducive environment for their science teaching. This will further improve the attitude of the public school science teaching.

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