Evaluation of Some Teacher Factors as Correlates of Attitudes to the Teaching of Basic Science

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Abstract
In evaluating the causes of low enrolment in science and science related courses at the tertiary education level, researchers have found teacher factors to be relevant. However, specific teacher factors affecting teacher attitude have not been conclusively and consistently arrived at. This study therefore sought to find out how some teacher factors affect teachers' attitude to teaching Basic Science (BS) since it is opined that teachers' positive attitude to teaching will lead to improved achievement. The composite and relative contribution of some teacher factors; qualification, age, gender and experience on their attitudes to teaching Basic Science as a subject was investigated. Multistage sampling method was used to obtain the study sample of 300 Basic School teachers as respondents. An instrument adapted by the researcher was used for data collection, this was re-validated with an internal consistency of 0.82 (83%). A research question was answered and one hypothesis tested. Data collected were analysed using frequency counts, percentages and regression statistics. Findings of the study reveal that the majority of the teachers are negatively predisposed to teaching BS. Also, of all the four independent variables, only gender has a significant relative contribution (0.228) to the attitudes of the BS teachers.

Key words: *Attitude, Basic Science, Teacher factors, Enrolment, Education*

INTRODUCTION

Science education is a professional enterprise in which learners are exposed to both intellectual knowledge and attitudinal development in science. This means that science education begins with knowledge of facts of science as a way of life and a way of outlook. That is, science education prepares the learner to live a scientific life in both intellectual and attitudinal disposition. Attitudes can be positive or negative and have three major components; cognitive, affective and behavioural. In the classroom setting, attitude is an important component that influences learning outcomes. Many studies have revealed that the development of the right attitude towards learning has significantly increased students' cognitive achievement in virtually all disciplines (Astin, 1993; Price, Price & William, 1998; Pelemo, 1995; Onafowokan, 1997). In the same vein, according to Falaye & Okwilagwe, (2008), attitudes held by teachers, influence their classroom behaviour, which invariably impact on students' learning and attitude development.

Iniobong (2008), opined that the future of any nation depends on the quality of teachers. The maxim that no educational system can rise above the quality of its teachers and that no nation can rise above the level of its teaching staff shows the role of the teacher and teacher education programmes in national development. Since teachers form an important component of the educational system, their attitudes, whether positive or negative influence the teaching and learning process. A teacher's attitude can leave lasting impressions on students' attitude and performance and can influence immediate and future decisions. Akinsola (2002) found that teacher variables (gender, age,

experience and attitude) predicted teacher anxiety in teaching mathematics. Of these variables, attitude of the teachers made the most significant contribution to the teaching of mathematics, while the other three variables were not significant.

Even though there are a variety of factors that influence teachers' attitudes to teaching, this study focused on teachers' experience, level of professional training, age and gender variables. Findings from the research would be of use in informing and guiding the policy and practice of ensuring effective and competent teachers in core subjects such as Basic Science and Technology.

Statement of Problem

Research findings have over time indicated that teacher factors are very important in science teaching at all levels. However, specific teacher factor that influence teachers' attitude to the teaching of Basic Science has not been conclusively and consistently arrived at. This research work seeks to find the composite and relative contribution of four independent variables (qualification, age, experience and gender) on a dependent variable, teacher's attitude to teaching Basic Science.

Research question

What is the profile of teachers' attitude to teaching Basic Science at the Ogun State basic schools?

Hypothesis

There is no significant composite and relative contribution of teachers' qualification, age, experience and gender on their attitude to teaching Basic Science at the Ogun State basic schools.

Methodology

The study made use of survey research design.

Sampling and sample

The sampling was done using multi stage sampling procedure. The first stage had been done by the State Universal Basic Education (SUBEB), randomly sampling teachers to attend Millennium Development Goal (MDG) training. The second stage of the sampling was done by the researcher using purposive sampling technique to sample four intact classes from the available ten classes of teachers-participants available for the training. The sample comprised of practising basic school teachers from four local government areas of Ogun State, Nigeria: Abeokuta South, Odogbolu, Ipokia and Sagamu local governments respectively. A total of three hundred teachers (232 females and 68 males) were used for the study.

Instrumentation

A questionnaire was used to elicit information from the respondents. The questionnaire consists of two sections. Section A sought information about the respondent's bio data, such as local government of primary assignment, highest educational qualification, age, relevant teaching experience and gender. Section B elicited information on attitude to teaching Basic Science using a 4-point modified Likert scale. The instrument was adapted from Falaye and Okwilagwe (2008). The instrument has validity and reliability properties yielding a Cronbach coefficient alpha of 0.82.

Analysis

The data collected were analysed using descriptive and inferential statistics.

Results

Table 1: Profile of teachers' attitude to teaching Basic Science

S/N	Item	%Agree	%Disagree
1.	Enjoy teaching of BS	4	95
2.	BS is more interesting through excursion	24.5	74.5
3.	BS is best taught using lecture method	93.1	5.9
4.	Dislike giving frequent tests in BS	3.9	95.1
5.	Willing to attend improvement course in methods of teaching	40.2	58.8
6.	Prefer to teach other subjects other than BS	68.6	30.4
7.	Dislike giving projects/class work in BS	64.7	34.3
8.	Always trying out new methods of teaching BS	7.8	91.1
9.	Devote more time to teaching difficult topics in BST	93.2	4.9
10.	BS can be effectively taught without learning materials	2.9	96.0
11.	Need retraining to teach BS effectively	38.2	60.8
12.	Only specialists can teach BS effectively	26.4	72.6
13.	Teach only those areas that are interesting	84.3	13.7
14.	Anybody can teach BS	68.6	30.3
15.	Test items should reflect easy topics so that pupils pass well	31.3	65.7

Table 1 shows the attitude profile of Basic Science (BS) teachers. They disagreed that only specialists can teach BS effectively; dislike teaching BS through excursion, not interested in trying out new methods or retraining for more effectiveness. The teachers appear to be negatively predisposed to teaching BS.

Table2: Composite and relative contribution of teachers factors to their attitude to teaching basic science.

R	Adjusted R^2	F	Sig	Variables	Beta	t	Sig
0.233	0.014	1.337	0.262	Qualification	0.037	0.364	0.717
				Age	0.074	0.455	0.650
				Experience	- 0.064	- 0.391	0.696
				Gender	0.228	2.252	0.027

The table shows a R-value (0.233) with an adjusted R2 (0.014) which shows that 1.4% of the variance in the attitude of teachers to the teaching of Basic Science is accounted for by the teachers factors. The F-value (1.337) which is not significant at 0.05, ($p > 0.05$) shows that there is no significant composite contribution of the factors. The beta values, 0.228 for gender, 0.074 for age, -0.064 for experience and 0.037 for qualification indicate that gender contributed most to the attitude

of teachers to the teaching of Basic Science, followed by age, experience and qualification the least. While gender, age and qualification contributed positively to attitude, experience contributed negatively. Out of the four factors, only gender has a significant relative contribution.

Findings

From the research, majority of the teachers do not enjoy teaching BS. Methods adopted by the teachers for teaching BS are not good enough, they do not employ excursion method, mostly prefer lecture method, which should not be majorly in use at this level of education. They are unwilling to try out new methods. They do not give enough formative tests and projects to assess their pupils' classroom performance. Many of teachers are also not willing to be retrained or improve themselves in teaching methodology and would prefer to teach other subjects other than BS. Many only teach areas they find interesting and go further to set easy test items so that the pupils pass well and the deficiencies of the teachers are hidden to the stakeholders.

Of the four teacher factors, gender contributed most to the attitude of teachers to the teaching of Basic Science, followed by age, experience and qualification the least. While gender, age and qualification contributed positively to attitude, experience contributed negatively.

Conclusion

From the research work, more efforts need to be put in by the educational stakeholders to encourage a positive attitude to BS teaching in the basic school teachers. Gender contributed most to the attitude of teachers to teaching Basic Science. Teachers with long experience did not have positive attitude to teaching BST. The study agrees with Falaye & Okwilagwe (2008) who opined that attitudes held by teachers influence their classroom behaviour and invariably impact on students' learning and attitude development.

Recommendations

From the research findings, it is recommended to education stakeholders that gender should be a major consideration in employing teachers at the basic level. Head-teachers should also see ages and experiences of teachers as important factors to be considered when placing Basic Science (BS) teachers in their classrooms. Higher qualifications other than the basic teachers' qualification (National Certificate in Education - NCE) may not be needed for teachers to have positive attitudes to teaching science.

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