



Competences of Basic Science and Technology Teachers in Junior Secondary Schools for Effective Service Delivery in Bassa Area Directorate of Education, Plateau State, Nigeria.

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ABSTRACT

This study investigated the competences of Basic Science and Technology teachers in Junior Secondary Schools for effective service delivery in Bassa Area Directorate of Education, Plateau State. The study adopted a survey design and employed closed ended structured questionnaire, Teacher Competence on Students Academic Achievement in Basic Science and Technology Questionnaire (TCSABSTQ) for data collection from respondents. The population of the study comprised 51 Basic Science and Technology teachers in 39 Junior Secondary Schools in Bassa Local Government Area while a sample of 20 respondents was selected using simple random sampling technique. The instrument was determined using test-retest reliability method with a reliability coefficient $r=0.93$. Mean scores were used in answering research questions. The study found out that most Basic Science and teachers in secondary schools in Bassa Local Government Area were qualified and competent to teach the subject as they mostly held B.Ed. or NCE in Integrated Science or a Bachelor of Science with a corresponding qualification in education such as Post Graduate Diploma in Education (PGDE). Results showed that Teachers' competences affected students' performance as the quality of education students receive depends on the qualification of teachers. The study identified inadequate workshop and training, inconsistency in Integrated Science curriculum, lack of adequate instructional materials and inadequate funding as the challenges faced by teachers in teaching Basic Science and Technology in Junior Secondary Schools in Bassa Local Government Area. The study recommended among others that teachers should be encouraged to also register with professional science bodies such as the Science Teachers Association of Nigeria (STAN,) and new teachers should constantly go through in-service training, workshops and seminars to improve their pedagogical skills and subject matter competence.

INTRODUCTION

Background to the Study

Quality education is the priority of every government that desires national development. Education is the process of receiving or giving systematic instruction, especially at a school or university. It is the totality of life experience that people acquire and which enables them to cope with and derive satisfaction from living in the world. This is because it enables them to achieve social competence and optimum individual development. Osakwe (2010) stated that a nation cannot develop above the level of education of its citizens. From the beginning, man has strived to improve his way and quality of life. The early man during the medieval period discovered how to make and use tools, developed logical sequence for activities evolved processes that added to his life, the totality of the use and application of his knowledge, skills tools and materials constitute what is described today as Science and Technology (Eze and Obeta, 2010).

Science and Technology is indispensable for any meaningful national development. Hence science education needs to be taken serious. Science is relevant to humanity. It is the systemic application of knowledge that not only brings modernity to man and his environment but also gives mankind the ability to explain everyday phenomena and develop technologically. In this 21st century when the whole world is fast becoming a global village, the study of science and technology becomes mandatory. This is because the growth of any nation economically, socially and politically is determined to a great extent by its advancement in science and technology (Osuala, 2012).

The system of education in Nigeria comprises the nine years basic education consisting of six years primary education and three years junior secondary education introduces science education to pupils and students through basic science (formerly primary science in primary schools and Basic Science and Technology in Junior Secondary School). Basic science is the gate way to main science subjects such as chemistry, physics and biology among others. The science studied at the basic level aims to prepare students for the core science subjects at the senior secondary and higher institutions. The aims and objectives of basic science [U1] as stipulated in the National Policy on Education are to enable learners to: Develop interest in science and technology; Acquire basic knowledge and skills in science and technology; Apply their scientific and technological knowledge and skills to meet societal needs; Take advantage of the numerous career opportunities offered by science and technology and Become prepared for further studies in science and technology (FRN, 2013). In 1977, the first National policy on Education divided the existing five-year Secondary School into six –year Junior Secondary School system consisting of three –year Junior Secondary School and

three year Senior Secondary School in the 6-3-3 year system of education. In the three-year of Junior Secondary School (JSS) in Nigeria, almost all science and technical subjects are integrated together and called Basic science and Technology. The mastery of a subject is determined by the achievement of the students in such a subject at a prescribed examination (Adedayo, 2010). Any interactive activity between a teacher and the students is expected to produce learning outcomes in the learners (Ango, 2010). When such an activity failed to produce a change in behaviour (learning) in the learners, then, there is a problem. One of such resultant problems is students' involvement in examination malpractice (Ajayi, 2018).

Examination has been generally accepted as the best means of assessment. It is a formal test of knowledge or ability (Furrugia, 2017). In fact, in a school setting, examination is a means of evaluating the quantity of knowledge a student has acquired within a specific period of time. Adekunle (2017) sees examination as an instrument used for the assessment of individual skills and knowledge-content, both in general and specific area of study. Unfortunately, in spite of the relevance of examination in assessing students' academic achievement, examination has become ineffective as all forms of malpractice have been introduced into the system. Adesina (2020) traced the history of examination malpractice in Nigeria to 1914. When there was a leakage of the Cambridge examination, since then, cheating became widespread in schools. Since then, students' dependence on examination malpractice has been on the increase as students fail to master the subject hence seeks alternative means (Goldhaber & Brewer, 2012).

The achievement of students in basic science and science generally is a major concern to science educators. Sakiyo & Sofeme (2018) noted that students' achievement in science subjects is low in both national and state examinations. A number of reasons can be identified to be accountable for the poor achievement of students in basic science. These include teachers' competence, the science curricula, teachers' methods of teaching, parents, government, lack of science facilities and others (Ahiakwo, 2013). According to Ango (2020), students' poor achievement in basic science globally is basically due to lack of competent teachers which gives rise to other challenges such as poor teaching methods, poor subject matter knowledge and poor pedagogical skills among others. The impact of the teachers' competence and qualification on the achievement of the students is germane and cannot be overemphasized (Seweje & Jegede, 2015). Teachers are the facilitators who are to impact into students the concepts expected to be learnt. However, Nwagbo (2015) and Olarewaju (2016) were of the opinion that ignorance of the teachers or neglect to pursue excellence and competence in the career grossly contribute to students' low achievement in basic science leading to students' involvement in various acts of examination malpractices.

Teacher competence is a broad concept that encompasses the knowledge, skills, and attitudes that enable teachers to effectively plan, implement, and assess teaching and learning. It is a complex and multifaceted construct that is influenced by a variety of factors, including teacher training, experience, and personal dispositions. In the context of basic science education, teacher competence is particularly important for ensuring that students develop a deep understanding of scientific concepts, principles, and processes. A number of studies have shown that teacher competence has a significant positive impact on student's learning outcomes in basic science education. For example, a meta-analysis of 50 studies revealed that teachers with higher levels of competence were more likely to have students who achieved higher scores on standardized tests of science knowledge and skills (Hattie, 2013). Similarly, a study of over 1,000 students in Nigeria found that students who had teachers with higher levels of competence in science were more likely to report positive attitudes towards science and to intend to pursue careers in science (Okeke, Nwafor and Onuka, 2018).

The teacher is the major manpower saddled with the responsibility of impacting the concepts considered fundamental to basic science and technology through the teaching of these basic concepts at the Junior Secondary School level. This was why Adeniyi (2018) noted that a country's manpower development depends on the quantity of her well-qualified teachers. As stipulated in the Nigeria National Policy on Education (2013), basic science teaching at the Secondary School level is meant to develop essential scientific skills in the learners so as to prepare them for senior secondary sciences, industrial and technological application in order to stimulate and enhance creativity in them. These laudable objectives would not be realized when the students are taught by incompetent teachers. Such teachers would not be able to properly and adequately disseminate the concepts to the students. The competence of basic science teachers in this regards would be of immeasurable value. In view of the above background the researcher deems it fit to survey competence among basic science teachers in Junior Secondary Schools for effective service delivery in Bassa Area Directorate of Education, Plateau State.

Statement of the Problem

In spite of the pivotal role of basic science [U2] as core science subject in Nigeria senior secondary science curriculum, over the years, the problem of under achievement of science students in the subject has remained a major general problem. For example, the National Examination Council (NECO) reported massive failure in basic science in the Basic Education Certification Examination (BECE) examination over the years (Olurande, 2021). Olurunde also attributed students' failure to incompetent teachers and further posit that incompetent teachers give rise to exams malpractices among students. The major forms of examination malpractice reported are: Impersonation;

bringing in foreign materials (books, calculator); substituting worked scripts, stealing, converting, misappropriating scripts; collusion in the examination hall (copying); mass\organized cheating involving assistance from teachers and outsiders; and insult\assault on supervisors\invigilators (Oluyeba & Daramola, 2020). This trend in examination malpractices is inimical to academic development and advancement and needs to be drastically addressed.

Many researchers in Nigeria have conducted series of researches to actually find out what could be responsible for the problem. Factors such as teachers' incompetence, lack of adequate laboratory equipment, ineffectiveness and lack of teaching proficiency of teachers, and school factors among others have been identified as major causes of underachievement of science students in basic science. Despite all these efforts, the poor achievements of students still exist. However, little emphasis has been laid on how competence impact effective service delivery among basic science teachers. This study therefore seeks to explore how competence among basic science teachers affects the effectiveness of their service delivery.

Aim of the Study

The aim of the study is to survey [U3] competence among basic science [U4] teachers in Junior Secondary Schools effective service delivery in Bassa Area Directorate of Education, Plateau State, Nigeria.

The specific objectives of the study are [U5] to:

1. Determine the competences of Basic Science and Technology teachers in junior secondary schools in Bassa Area Directorate of Education, Plateau State, Nigeria.
2. Ascertain the influence of competence of Basic Science and Technology teachers on students' academic performance in junior secondary schools in Bassa Area Directorate of Education, Plateau State, Nigeria
3. Identify the challenges faced by teachers in teaching Basic Science and Technology in senior secondary schools in Bassa Area Directorate of Education, Plateau State, Nigeria.

Research Questions

In order to guide the researchers to achieve the objectives of the study, the following research questions were raised:

1. What is the status and academic qualification of Basic Science and Technology teachers in junior secondary schools in Bassa Area Directorate of Education, Plateau State?
2. What is the influence of competence of Basic Science and Technology teachers on students' academic performance in junior secondary

schools in Bassa Area Directorate of Education, Plateau State?

3. What are the challenges faced by teachers in teaching Basic Science and Technology in Senior Secondary Schools in Bassa Area Directorate of Education, Plateau State?

Hypothesis

The following hypothesis was formulated and tested at 0.05 (5%) level of significance:

H₀: There is no significant relationship between basic science and technology teachers' competence and students' academic achievement in junior secondary schools in Bassa Area Directorate of Education, Plateau State.

METHODOLOGY

The research design adopted for the study was the descriptive survey research design. Thus, the researcher employed it because of the large population involved in the selected study area and it was a convenient design which is suitable. The justification as observed by Onoja (2004) is that a large population with variables that cut across peculiarities of a target population can adopt the survey research. As such, large populations with variables that are prominent and cut across peculiarities of the target population were involved in this study.

The population for the study comprised all teachers of basic science and technology in Secondary Schools in Bassa Area Directorate of Education, Plateau State. Bassa Area Directorate of Education, Plateau State has thirty nine (39) Secondary Schools with 61 basic science teachers. The sample size for the study consists of 20 basic science and technology teachers selected from ten secondary schools in Bassa Area Directorate of Education, Plateau State. The research instrument was a questionnaire titled, Teacher Competence on Students Academic Achievement in Basic Science and Technology Questionnaire (TCSABSTQ). The structure of the questionnaire is closed-ended questions, with 4-point (strongly agree, agree, disagree and strongly disagree). The questionnaire contained two sections A and B. Section A sought respondents' bio-data while section B contained the items statements. The items in the instrument were sourced from literature that discussed effect of teacher qualification on students' achievement as well as information from the Nigerian Teachers' Professional Standards. The questionnaire was developed subjected to expert judgment from three other experts in research measurement and evaluation for correction and validation while the reliability of instrument was established through Cronbach's Alpha. The reliability coefficient was 0.90. The data collected through the questionnaire were carefully collated and the results

obtained were organized, and presented in tables. Mean scores were used in answering research questions while Chi-Square test of independence was used in testing research hypothesis. The results were computed using SPSS version 25.

RESULTS

Research Question 1: What are the qualifications of teachers in secondary schools in Bassa Area Directorate of Education, Plateau State?

Table 1: Educational Qualification of Respondents

Option	Frequency	Percentage (%)
NCE	13	65
HND	0	0
B.A, B.Eng., B.Sc, B.Ed	6	30
M.A, M.Eng, M.Sc.M.Ed	1	5
Total	20	100

Table 1 Shows the Educational Qualifications of Respondents. From the table, 13 respondents representing 65% of the total respondents were NCE holders, 6 respondents (30%) were First Degree (B.A, B.Eng., B.Ed.) holders while 1 respondents (5%) were Masters Degree (M.A, M.Eng, M.Sc.M.Ed) holders.

Table 2: Registration of Teacher with TRCN

Option	Frequency	Percentage (%)
Registered	8	40
Not Registered	12	60
Total	20	100

Table 2 shows the Registration of Teacher with TRCN. The data revealed that eight respondents representing 40% of the total respondents were registered with the Teachers' Registration Council of Nigeria (TRCN) while 12 respondents representing 60 of total respondents were not registered with TRCN.

Table 3: Years of Teaching Experience

Option	Frequency	Percentage (%)
0 – 5 years	3	15
6 – 10 years	4	20
11 – 15 years	7	35
16 – 20 years	4	20
Above 20 years	2	10
Total	20	100

Table 3 shows the Years of Teaching Experience. The data revealed that 3 respondents representing 15% of

the total respondents had 0 – 5 years teaching experience, 4 respondents representing 20% of total respondents had 6 – 10 years teaching experience, 7 respondents (35%) had 11 – 15 years teaching experience, 4 respondents (20%) have teaching experience while 2 respondents (10%) had over 20years teaching experience.

Table 4: Years of teaching in present school

Option	Frequency	Percentage (%)
0-5 years	7	35
6 – 10 years	3	15
11 – 15 years	4	20
16 – 20 years	3	15
Above 20 years	3	15
Total	20	100

Table 4 shows the years of the teaching in present school teachers' responses to years of the teaching in present school. The responses indicates that 7 respondents representing 35% of the total respondents had been teaching in their present school for 0 – 5 years, 3 respondents representing 15% of total respondents have been teaching in their present school for 6 – 10 years, 4 respondents (20%) have taught in their present schools for 11 – 15 years, 3 respondents (15%) have been

teaching in their present school for 16 – 20 years while 3 respondents (15%) have been teaching in their present school for over 20years.

Table 5: Attendance of Workshop

Option	Frequency	Percentage (%)
Have attended science teachers workshop in the last one year	4	20
Have not attended science teachers workshop in the last one year	16	80
Total	20	100

Table 5 shows responses for teachers' attendance of workshop. The table shows that 12 respondents representing 20% of the total respondents have attended science teachers' workshop in the last one year while 16 respondents representing 80% of total respondents have not attended science teachers workshop in the last one year.

Research Question Two: What is the influence of competence of basic science teachers on students' academic performance in junior secondary schools in Bassa Area Directorate of Education, Plateau State?

Table 6: Mean score of the effect of competence of Basic science and Technology teachers on students' academic performance in junior secondary schools

ITEM	SA	A	DA	SD	Total Freq.	Total Score	Mean Score	Remark
6. The quality of education students receive depends on the competence of teachers.	4	9	4	3	20	52	2.60	Accepted
7. Teachers' competence in subject matter knowledge, in basic science is a good predictor of students' academic achievement	4	7	5	4	20	51	2.55	Accepted
8. The performance of students in basic science is determined by the competence of teachers	7	8	4	1	20	61	3.05	Accepted
9. Students taught by more competent and experienced basic science teachers perform well academically.	6	10	3	1	20	61	3.05	Accepted
10. Students will understand better and achieve more in basic science if taught by competent teachers.	7	8	3	2	20	60	3.0	Accepted

From Table 6 , analysis of data shows that item 6 has a mean score of 2.60. Since this score is above the criterion mean (decision rule) of 2.5, the researcher therefore, accepts that the quality of education students

receive depends on the competence of teachers. Item 7 has a mean score of 2.55. This score is above the decision rule (criterion mean score) of 2.5; the researcher therefore, accepts that teachers' knowledge

of specific subject matter, particularly in basic science is a good predictor of student achievement. Item 8 have a mean score of 3.05. This score is the criterion mean score (decision rule) of 2.5; the researcher therefore, accepts the notion that the performance of students in basic science is determined by the competence of teachers. Item 9 has a mean score of 3.05. This score is above the criterion mean (decision rule) of 2.5; the researchers therefore, accept the notion that students taught by more competent and experienced basic science teachers perform well academically. Item 10

have a mean score of 3.00. This score is above the criterion mean (decision rule) of 2.5; the researcher therefore, upholds the notion that students will understand better and achieve more in basic science if taught by competent teachers.

Question Three: What are the challenges faced by teachers in teaching Basic science in senior Secondary Schools in Bassa Area Directorate of Education, Plateau State?

Table 7: Mean score of challenges faced by teachers in teaching Basic science

ITEM	SA	A	DA	SD	Total Freq.	Total Score	Mean Score	Remark
11. Inadequate workshop and training affects the effectiveness of basic science teachers	7	9	2	2	20	61	3.05	Accepted
12. Inconsistency in basic science curriculum is a challenge affecting the performance of basic science teachers.	5	7	5	3	20	59	2.95	Accepted
13. Lack of adequate instructional materials is a major challenge impeding against the effective teaching and learning of basic science in secondary schools.	7	8	3	2	20	60	3.00	Accepted
14. Inadequate infrastructural materials such as basic science laboratory and equipments have negative effects on the teaching and learning of basic science.	9	6	4	1	20	63	3.15	Accepted
15. Inadequate funding impedes the teaching and learning of basic science.	6	9	4	1	20	60	3.00	Accepted

From Table 7, analysis of data shows that item 11 has a mean score of 3.05. Since this score is above the criterion mean (decision rule) of 2.5, the researchers therefore, accept that inadequate workshop and training affects the effectiveness of basic science teachers. Item 12 has a mean score of 2.95. This score is above the decision rule (criterion mean score) of 2.5; the researchers therefore, accept that inconsistency in basic science curriculum is a challenge affecting the performance of basic science teachers. Item 13 have a mean score of 3.00. This score is above the criterion mean score (decision rule) of 2.5; the researchers therefore, accept the notion that lack of adequate instructional materials is a major challenge impeding

against the effective teaching and learning of basic science in secondary schools. Item 14 have a mean score of 3.15. This score is above the criterion mean (decision rule) of 2.5; the researchers therefore, accept the notion that inadequate infrastructural materials such as basic science laboratory and equipments have negative effects on the teaching and learning of basic science. Item 15 have a mean score of 3.00. This score is above the criterion mean (decision rule) of 2.5; the researcher therefore, upheld the notion that inadequate funding impedes the teaching and learning of basic science.

4.2 Hypothesis

The following hypothesis was tested at 0.05 (5%) level of significance:

H₀: There is no significant relationship between Basic Science and Technology teachers' competence and students' academic achievement in junior secondary schools in Bassa Area Directorate of Education, Plateau State.

Table 8: Chi-Square Test for relationship between Basic Science and Technology teachers' competence and students' academic achievement in junior secondary schools in Bassa Area Directorate of Education, Plateau State

Cell	F _o	F _e	d _f	t. Significant	X ² Cal	X ² Critical	Decision
1	7	20.44	6.0	0.05	56.81	12.592	H₀ Rejected
2	8	19.00					
3	4	15.44					
4	1	6.00					
5	6	20.44					
6	10	19.00					
7	3	15.44					
8	1	6.00					
9	7	20.44					
10	8	19.00					
11	3	15.44					
12	2	6.00					

Table 8 indicates that at $d_f = 6$ and $\alpha = 0.05$ level of significance, the chi-Square calculated value is greater than the chi-square critical value that is ($X^2\text{-calc.} = 56.81 > X^2\text{-Crit.} = 12.592$). The researcher therefore rejects the null hypothesis and accepts the alternative hypothesis. There is therefore sufficient evidence to conclude that there is significant relationship between basic science teachers' competence and students' academic achievement in junior secondary schools in Bassa Area Directorate of Education, Plateau State.

DISCUSSION

Findings from the study revealed that most basic science teachers in secondary schools in Bassa Area Directorate of Education, Plateau State are qualified to teach the subject as the mostly hold in B.Ed. or NCE in Basic science or hold a Bachelor of Science in Basic science with a corresponding qualification in education such as Post Graduate Diploma in Education (PGDE). Further buttressing the finding on teachers' qualification, the study found out that most basic science teachers are registered with the Teachers Registration Council of Nigeria (TRCN). Despite most teachers qualifying to teach basic science, the study however revealed that most teachers don't have opportunity for in-service training through workshop, conference or seminar in past one year. Upon further discussion with some teachers that responded to questionnaires, it was gathered that most of the teachers that indicated that they have been through training in the past one year mostly attended internal workshops organized by a few schools. These findings agree with TRCN (2020) who posit that as at November 2020, most practicing teachers have

registered and their qualifications verified. Furrugia (2017) perceived a professional teacher as one who possesses professionally based knowledge in the theory and practice of education as well as find job satisfaction in the belief that he/she is making an important contribution to the social, cultural and economic development of his/her country. Such a teacher should equally, be able to understand students' abilities to exploit educational benefits of the social context within which he/she lives.

In research question two (Table 7) the study sought the effect of competence of basic science teachers on students' academic performance in junior secondary schools in Bassa Area Directorate of Education, Plateau State. It was gathered that the quality of education students receive depends on the competence of teachers. This agrees with the popular saying that no nation can rise above the quality of its teachers. Teachers are the primary implementers of the curriculum, therefore, no matter how relevant the curriculum objectives of any system of education is, its effective implementation and achievement rests to a large extent on the quality of its teachers. This finding agrees with Anderson (2009) who stressed that educators have come to realize that many meaningful improvements in the quality of education that students receive are highly dependent on the quality of teachers. The study also found out that teachers' knowledge of specific subject matter, particularly in basic science is a good predictor of student achievement. This agrees with Schofield (2014) who opined that teachers' subject-matter knowledge is considered as a measurable performance indicator for assessing basic science teachers' performance. A teacher must himself properly understand the concepts of a topic or subject in order to

effectively inculcate such knowledge to students. The performance of students in basic science therefore is determined by the competence of teachers. Another teacher competence factor that affects students' performance is teaching experience of the teacher. Teacher's teaching experience is positively correlated with learning outcome of students. Teachers with good teaching experience tend to be better than beginners in most cases. This because the experience gained over numerous years of teaching improves their subject matter knowledge as well as pedagogical skills. Students, therefore, will understand better and be more competent in basic science if taught by qualified teachers. Monk (2014) finds a strong correlation between teacher subject matter preparation in mathematics and student success for both low and high scoring students.

The study identified the challenges faced by teachers in teaching Basic science in junior Secondary Schools in Bassa Area Directorate of Education, Plateau State. (Table 8). The findings indicate that inadequate workshop and training affects the effectiveness of basic science teachers. Some teachers in secondary schools have never gone through any in-service training since they were employed. This affects their effectiveness as there is need for consistent training and re-training to update their pedagogical skills. Research is consistently discovering newer and more effective methods of teaching, especially in science; therefore teachers also need to update their knowledge constantly. The study also identified inconsistency in Basic Science and Technology curriculum as a challenge affecting the performance of basic science teachers. Secondary school basic science curriculum has been slightly changed more than 3 times from 2004 till date (Akinlaye, 2013). However, as the curriculum is being modified, corresponding teacher training, motivation and needed instructional materials are not provided. The resultant effect is reluctance on the part of teachers to fully implement the curriculum which in turn affects students' achievement negatively. Lack of adequate instructional materials is another major challenge impeding against the effective teaching and learning of basic science in secondary schools. Most schools do not have relevant facilities and instructional materials needed to teach most topics in basic science. This agreed with the findings of Kamar (2007) which revealed that lack of instructional materials, laboratory equipment, chemicals and laboratory assistant are reported by teachers as the major constraints militating against the conduct of practical work in basic science. The subject is taught using chalk and 'talk method' with little or no practical sessions due to inadequate laboratory resources and instructional materials. This affects teachers' and students' performance in the subject negatively. Inadequate funding was also found to impede the teaching and learning of basic science. Without adequate funds, the needed instructional materials cannot be purchased. Even in situations where teachers are expected to improvise instructional materials, funds

are needed, however, in most schools, funds are not provided for these purposes. On poor funding Puyate (2013) maintained that such is responsible for non-availability of instructional materials which affects the running of basic science programmes. These findings agree with Ajayi (2018) who listed challenges in curriculum content, teaching Methods, teacher's quality, negative attitudes of students towards basic science, inadequate teaching materials and poor funding as challenges facing the teaching and learning of basic science in most secondary schools in Nigeria.

CONCLUSION

This study on the competence of basic science teachers in Junior Secondary Schools (JSS) underlines the critical link between teacher qualifications and effective science education. Competent teachers foster a positive learning environment, utilize engaging instructional methods, and possess a deep understanding of the scientific concepts they are teaching. This directly translates to improved student performance in basic science subjects.

The study identified areas where teacher competence needs improvement. Challenges such as inadequate numbers of qualified teachers, insufficient funding for resources, and a lack of in-service training can all hinder teachers' ability to deliver effective science lessons. These limitations can restrict teachers from implementing practical activities, staying abreast of scientific advancements, and employing innovative teaching strategies.

To ensure effective service delivery and cultivate a generation of scientifically literate students, it is imperative to address these challenges. Targeted interventions such as increased recruitment and training programs for science educators, along with improved funding for laboratories and equipment, can significantly enhance teachers' competence and empower them to inspire a love of science in their students.

In order to achieve the laudable aims and objective of Basic science at the senior secondary school level, teachers must be academically and professionally qualified. Teacher qualification determines the quality of instruction students receive. Qualification, competence and appropriate in-service training for teachers of Basic science will go a long way to enhance the achievement of the educational objectives of basic science as stipulated in the National Policy on Education (2013). The researcher strongly believes that if the findings and recommendations of this work are applied in the Basic Science and Technology classroom, students' academic performance will improve significantly.

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