International Journal of Innovative Social & Science Education Research 9(4):54-60, Oct.-Dec., 2021

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The Perception Of Junior Secondary School Students On Student Teachers' Competence In Basic Science Teaching In Barkin Ladi Local Government Of Plateau State

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ABSTRACT
The study investigated on the perception of junior secondary school students on Student Teachers' Competence in Basic Science teaching in Barkin Ladi Local Government Area of Plateau State. A descriptive survey method was employed in the study. The population of the study consists of 3884 JS II students drawn from nine (16) and sample consists of 342 students drawn from nine (9) secondary schools in Barkin Ladi Local Government of Plateau State. Stratified sampling technique was used to select the schools from which respondents were selected. One research questions and two null hypotheses were formulated to guide the study. A 40 items questionnaire instrument was designed and used by the researcher. The instrument was validated by my supervisor. Statistical tools used for analysing data collected from the field were simple percentage and Chi- square. The major findings of the study are, Majority of Junior secondary schools students in Barkin Ladi Local Government area, State perceived that their Basic science Student teachers' competent in discharging their classroom duties in terms of instruction (teaching). There is no significant difference in the perception of male and female JS II students on the competent level of Student Teachers teaching Basic Science in Barkin Ladi Local Government area.
Keywords: perception, teachers' competence, basic science

INTRODUCTION

Student teachers' competency in teaching basic science is an important factor in determining the success of a teaching session, when they are out especially, for their teaching practice assignment. Their ability and wisdom in handling learning activities will have a direct impact on students' active involvement in the teaching and learning activities. Therefore, the development of teachers' competency involving the efforts of fostering positive attitudes is a major agenda to strengthen the teaching profession and to ensure great development of the education quality in science (Sambo, 2010, Awang, Jindal-Snape and Barber, 2013).

Basic science covers general science, Biology, Physics and Chemistry subjects. These subjects require practical training as well as theoretical studies. To be competent, student teachers need to be efficient in designing, planning and implementing the lesson. A part from that, this category of teachers needs to assess the practical training and laboratory experiment. The country needs more scientific-minded people to accomplish the national mission for Nigeria to be a developed nation. Therefore, students need to be nurtured to love science and to positively practice scientific culture. According to Kamisah, Zanaton and Lilia (2007) and Sambo, Mahmuda, & Nurudeen, (2014)

positive attitudes towards science and scientific activities will exist through constant monitoring of experiments and continuous assessment of practical activities.

The role of science in a society cannot be overemphasized; Science has now become a critical factor in determining the economic well-being of any nation. Science is being understood as an important part of every child's education. It is explicitly clear that classification of countries according to their status reflect levels of science and technology advancement (Soyibo, 1983 and Iji & Sambo (2017). Sambo & Ishaleku (2005) and Olarinloye (2007) saw science education as the identification, development and use of talents, processes and skills for societal progress. Science education is one of the areas in the wider world, which shaped and molded the character of the 21st century especially in technologies which have revolutionized the way we live and think. Science is taught in interdisciplinary approach so as to provide an integrated background to secondary school children who will become leaders of tomorrow so as to make them scientifically literate. Science has long been recognized as an instrument par excellence for nation building and wealth creation.

Richmond (1999) and Sambo, Adejoh and Uzoechi (2012) pointed out that if we want to train students to become functional in the society, they must learn science as an integrated discipline. He also said that Integrated Science helps students understand possibilities and limitation of science, also to understand the natural phenomena. Therefore, the student teacher is expected to provide a conducive atmosphere for the children to observe, ask questions and be involved in problem-solving activities and open-ended field or laboratory exercises. Student teachers are the controllers of learning experience that goes on in the classroom. The student teachers also, are the instructors of the students in the course of carrying out their duties. This depends on the professional training he or she acquired during his pre-service years. Over the years, there have been issues of low performances in Basic science all over the country (Akale, 1993 and Sambo (2017).

The major factor responsible for low performance could be incompetence of basic science teachers, teachers' attitude to the subject and students' attitude to the subject. The 9-year Basic Science curriculum provides re-alignment and restricting of the revised curriculum for junior secondary school basic science in order to meet the target of 9-year Basic Science Education in National Economic Empowerment and Development Strategies (NEEDS) and the Millennium Development Goals (MDGS).

The Basic Science curriculum is a spiral curriculum which revisits themes so as to enable students understands basic concepts and their interrelationship. The major focus is learner readiness to learn. The integrated science (Basic Science) curriculum consists of contents that revolve around four (4) different themes namely:

i. You and Environment
ii. Living and non –Living things
iii. You and Technology
iv. You and Energy

At the upper level however, theme "3" You and Technology was changed to "Science and Development". The topics under each theme were sequenced in spiral form beginning with the simple to the complex across the 9- years of Basic Education in order to sustain the interest of learners and promote meaningful learning. The use of guided inquiry method of teaching and learning is implied in the activities. The teachers facilitate and provide a conducive learning environment to the students. Inquiry method is to be applied when the lesson begins with a problem that is to be solved, So as to develop the students to have interest to observe and have the skill of investigation and gathering scientific data. Hence, this study is to determine on how teachers use their competencies to carry out the teaching and learning of basic science in Barkin Ladi Local Government of Plateau State

Statement of the Problem

In spite of the strategic position of basic science student teachers', evidence still exists to show that students' involvement was still low in conducting experiments in the study area, and they are not effectively guided by the student teachers. So they are not given their 100% interest and attention in the laboratory resulting to poor outcomes and inability to obtain the actual result of the experiments (Kellough, 1996). The study shows that student teachers are still inefficient in handling laboratory equipment's and could not manage a systematic and effective experiment. This might be due to the

fact that they fail to plan their lessons and or, the lessons are not organized and structured effectively (Wruheran Sinnadurai, Alyas & Rohani Abdul Hamid Mohamed, 2004).

Effective teaching occurs when student teachers have the knowledge and personality. It is because the science concept is proven through observation and analysis of experiment in the science laboratory. Unfortunately, Basic Science teachers still have a low competency level in conducting practical or scientific experiments. There are mechanical and electrical risks in conducting Basic science experiments. Thus, in reality, Student teachers do not give the chance for students to think; in fact most student teachers disregard students' thinking activities. Consequently, incompetent student teachers significantly influence students' level of interest in the subject.

According to Chang and Lederman (1994), most students do not have general or specific ideas about the purpose of the inquiry activities in the laboratory and in many practical activities; they do not know what to do. Truth in science can only be proven through practical activities, but the failure of student teachers to prepare their learning materials, improper planning and inappropriate equipment's will give negative implications on the implementation and evaluation of practical experiments. The lesson will be useless and will not have any impact on students' behavioural change (Kellough, 1996). It is against this backdrop that the researcher investigated on the perception of junior secondary school students on student teachers competence in basic science teaching in Barkin Ladi Local Government area of Plateau State.

Research Questions

The following research questions were raised to guide the study.

1. What is the perception of junior secondary school students on Student Teachers' competence in Basic Science teaching in Barkin Local Government Area?

Hypotheses

The following hypothesis were formulated and tested at 0.05 level of significance:

1. There is no significant difference between perception of male and female junior secondary schools students on Student teachers competence in teaching Basic Science subject in Barkin Ladi Local Government Area.

2. There is no significant difference between the perception of male and female junior secondary school students on Student teachers competence in Basic Science teaching in Barkin Ladi Local Government Area.

METHODOLOGY

A descriptive survey was employed in the study. The population of the study consists 3884 JS II students drawn from nine (16) and sample consists of 342 students drawn from nine (9) secondary schools in Barkin Ladi Local Government of Plateau State. Stratified sampling technique was used to select the schools from which respondents were selected. Two research questions and two null hypotheses were formulated to guide the study. A 40 items questionnaire instrument was designed and used by the researcher. The instrument was validated by an expert in research. Statistical tools used for analysing data collected from the field were simple percentages and Chi- square.

RESULTS

Research Question One: *What is the perception of junior secondary school students on Student Teachers' competence in Basic Science teaching in Barkin Ladi Local Government Area?*

Table 1: Frequency table showing perception of junior secondary students on Student Teachers' competence in teaching Basic science subject in Barkin Ladi Local Government Area

S/N	ITEMS	SA Freq	SA %	SD Freq	SD %
1.	Teachers uses local materials to teach	120	21	222	79
2.	Teachers writes slowly on chalkboard	160	31	182	69
3.	Teachers uses discussion method with students	119	21	223	79
4.	Teachers use problem solving method	140	26	202	74
5.	Teachers organize science club in school	110	19	232	81
6.	Teachers make effective use of instructional materials	130	22	212	77
7.	Teachers take students out for excursion	153	29	189	71
8.	Teachers reward or motivate the students	150	28	192	72
9.	Teachers create a democratic environment	140	26	202	74
10.	Teachers organizers extra lessons	120	21	222	79
11.	Teachers use project method of teaching	110	19	232	81
12.	Teachers involve students in laboratory Experiment	99	17	243	83
13.	Teachers carry out experiment in the laboratory	170	33	172	67
14.	Teachers occasionally give the students test	199	74	143	26
15.	Teachers allow students to carry out experiment in the laboratory	136	25	206	75
16.	Teachers ask students question on previous lesson.	143	26	199	74
17.	Teachers explain difficult concept in their mother tongue	206	75	136	25
18.	Teachers have good mastery of their subject method	164	32	178	68
19.	Teachers ask students to solve mathematics problems	164	32	178	68
20.	Teachers are dedicated to their work	110	19	232	81

The data in Table 1: reveals that the respondents with 79% strongly disagree that student teachers improvise local materials during their lesson. While in item 2, 69% respondents strongly disagree that student teachers write slowly on chalkboard. Also item 3 results revealed that majority of the respondents with 79% strongly disagree that student teachers make use of discussion method. In item 4, most respondents with 74% strongly disagree that student teacher's use problem solving method in their teaching. And so in item 5 results which revealed that 81% respondents, who are majority, strongly disagree that teachers organize science club in schools. Likewise in item 6, 77% of the respondents strongly disagree that teachers make effective use of instructional materials. Also item 7 results revealed that majority of respondents with 71% strongly disagree that student teachers use excursion method. In item 8, 72% of the respondents strongly disagree that student teachers motivate the students in the class. Similarly item 9 results confirmed that most respondents with 74% strongly disagree that student teachers create active learning environment .In item 10 most respondents with 79% strongly disagree that student teachers organize extra lesson for their students. While in item 11, 81% respondents strongly disagree that student teachers use inquiry method of teaching. In item 12, most respondents with 83% strongly disagree that student teachers involve students in laboratory experiment. So also in item 13, 67% respondents strongly disagree that teachers carry out experiments in the laboratory. Also item 14 results revealed that majority of the respondents with 74% strongly disagree that student teachers occasionally give the students test. In

item 15 most respondents with 75% strongly disagree that student teachers allows students to carry out experiment in the laboratory. Item 16 results revealed that respondents with 74% strongly disagree that student teachers ask students question on previous lesson. In item 17 with most respondents with 75% strongly agree that student teachers explain difficult concept in mother tongue. In item 18 most respondents with 68% strongly disagree that student teachers have good mastery of their subject matter. In addition in item 19, respondents with high percentage of 68% strongly disagree that teachers ask students to solve mathematics problem in the class. Furthermore, in item 20, 81% respondents strongly disagree that student teachers are dedicated to their work. The results from these analyses show that Basic Science student teachers' lack some degrees of competence in teaching the subject. They are not well prepared for Basic Science teaching in junior secondary schools. Most of them do not use better teaching strategies necessary for acquisition of the needed knowledge and skills in Basic Science.

Hypotheses

Hypothesis One: There is no significant difference between perception of male and female junior secondary schools students on Student teachers competence in teaching Basic Science subject in Barkin Ladi Local Government Area.

Table 2: Chi-Square Analysis of the Difference between perception of male and female junior secondary schools' students on Student teachers competence in teaching Basic Science subject in Barkin Ladi Local Government Area.

Item Response	Male	Female	Total	X^2_{cal}	X^2_{crit}	
Competence	Agreed	107(96.5)	86(96.5)	193		
	Disagreed	64(74.5)	85(74.5)	149	5.24	3.84
	Total	171	171	342		

The data in Table 2 above reveals a calculated Chi-square value of 5.24 against a critical table value of 3.84. This shows that the calculated value is greater than the table value i.e. (X^2 cal = 5.24>X^2 crit=3.84 at a level of significance of 0.05. This therefore means that there is no significant difference in the perception of male and female students on student teachers' Competence in Basic science teaching is rejected and the alternative hypothesis or decision is that, there is significant difference in the perception of male and female students on student teachers competence in Basic Science teaching in Barkin Ladi Local Government Area.

Hypothesis two:

There is no significant difference between perception of male and female junior secondary schools students on teachers Attitude to Basic Science subject in Barkin Ladi Local Government Area.

Table 3: Chi-Square Analysis of Difference in the Perception of Male and Female JS III Students on student Teachers competence in Basic Science.

Item	Response	Male	Female	Total	X^2_{cal}	X^2_{crit}
Attitude	Yes	102(95.0)	88(95.0)	190		
	No	69(76.0)	83(76.0)	152	2.32	3.84
	Total	171	171	342		

The data in table 3 reveals that the calculated value of Chi-square (X2 cal) is 2.32, while the critical table value of Chi- square (X2crit) is 3.84. This means that the calculated value is less than the table value i.e. (X cal = 2.32< X2 crit=3.84) at a level of significance of 0.05. This indicates that the formulated null hypothesis stating that, there is no significant difference in the perception of male and female students on teachers competence in Basic Science subject is upheld, meaning that there is no significant difference in the perception of JS III male and female students on teachers competence in Basic science subject in Barkin Ladi Local Government Area.

DISCUSSION OF FINDINGS

The data in table one above, shows that Basic Science student teachers' lack some degrees of competence in teaching the subject. They are not well prepared for Basic Science teaching in junior secondary schools. Most of them do not use better teaching strategies necessary for acquisition of the needed knowledge and skills in Basic Science.

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CONCLUSION

The study revealed that Students in Barkin Ladi Local Government Area of Plateau State have positive attitude toward their Basic Science teachers' and their teaching profession. It has also been concluded that Basic Science teachers' incompetence could affect the students' performances in Basic Science subject. Based on the data collected for this study, it was concluded that there is no significant difference in the opinion of male and female students on the competence of teachers teaching Basic science in Barkin Ladi Local Government of Plateau State. This indicated that, going by the opinion of JS3 student's gender wise, the Attitude of teachers teaching Basic science as a subject at the JSIII level of our schools is acceptable to students of junior secondary schools in Barkin Ladi Local Government Area of Plateau State. It was also concluded that based on the data collected from the field of this study that the competence of teachers teaching Basic science in junior secondary schools in Barkin Ladi Local Government Area of Plateau State, is very low.

REFERENCES

Akale, M.A.G. (1993).Effect of Practical Activities on achievement in Integrated Science among Junior Secondary School Students in Kaduna State. *Journal of Science Teachers Association of Nigeria:* 28 (1 and 2): P.102-108

Kellough, (1996) *Integrating mathematics and science for intermediate and middle school students*. Englewood Cliffs: N.J. A. Simon and Schuster Company.

Olarinloye, O. (2007). An Investigation into the Availability and Extents of Use of Resources in the Teaching of Physics in Some Lagos Public and Private Schools.47th Annual Conference Proceedings of STAN 283-290.

Richmond (1999) The nature of Science Teaching and its influence on students Selection of Subjects. A.B.U. Press, Zaria, Nigeria.

Sambo, M. A. H. & Ishaleku D. (2005). Science Education: A vehicle for National Development, Unity and Democracy. A paper presented in the Journal of the National Association for Promotion of Studies in Religions, Education and Language (NAPSREL) pp. 247-255 April 2005.

Sambo, M.H., Isaac, J.T. Abdullahi, J.T. and Odagboyi, I.A. (2010). Fostering the development of science and technology programmes in Nigeria. *Journal of the Faculty of Education* (UNADJOE).

Sambo, M.H.,Adejoh, M.J. and Uzoechi, B.C. (2012). The Roles of Science, Technology and Mathematics Education in Sustainable National Development. A paper designed and presented at the 4th National Annual Conference of National Association for promoting

Educational Innovators (NAPEIN), University of Agriculture, Makurdi. Held on Monday, 13th-Saturday, 18th August, 2012.

Sambo, M.H., Mahmuda A. M. & Nurudeen, A.J.I. (2014). Junior Secondary School Student perception of

learning Environment, Teacher Interpersonal Behaviour and its effects on Achievement in Basic Science in Nasarawa State. International *Journal of Research in Science, Technology and Mathematics Education* (IJRSTME). Vol.2, No. 2. Pgs235-243.

Iji, C.O. & Sambo, M.A.H. (2017a). Enhancing Science, Technology and Mathematics Education (STME) Research through the selection and Usage of appropriate different Statistical Tools for Hypothesis Testing. *Journal of Science, Technology and Education (JSTE). Vol.1. .A publication of the Department of Science, Technology & Mathematics Education (STME),* Nasarawa State University, Keffi.

Sambo, M.A.H. (2017b). Investigating Junior Secondary School Student's Achievement and Challenges facing the Implementation of Basic Science Programme in North Central Zone, Nigeria. *Journal of Science, Technology and Education (JSTE).A publication of the Department of Science, Technology & Mathematics Education (STME),*Nasarawa State University, Keffi.

Wruheran ,S., Alyas, M & Rohani A. H, (2004) Science Practical In Teaching and Learning Science Subject among Form Four Students. Department of Science. Kuala Terengganu Teaching College (online). http://mpt.edu.my/penyelidikan/ amalisains.htm.

Zeidner, M. (1998). Socio-Cultural Differences in Attitudes towards Scholastic Ability examination. Journal of Educational Measurement. 25(1), 67-76.