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# Evaluating the Extent of Implementation if Basic Science Programme in Junior Secondary Schools in Nasarawa State

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**Abstract:** The investigation was designed to evaluate the extent of implementation of basic science programme in Junior Secondary Schools in Nasarawa state. Specifically, the study intends to find out whether the curriculum content of the Basic Science Programme are taught to the students as specified, the availability, adequacy and extent of utilization of facilities, the quality and quantity of teachers and the performance of students in the Basic Science Programme in Junior Secondary School Certificate Examinations (JSSCE) in the state. Evaluating the extent of implementation of basic science programme involves the collection of data and the use of data to evaluate the effectiveness of the quality of new science programme. A total of eighteen Junior Secondary Schools were sampled and questionnaires were administered to both teachers and students to collect the data. The result of the study revealed these findings. Basic science programmes in Nasarawa state Junior Secondary Schools are being implemented to a large extent, facilities available for the implementation of Basic Science Programmes are not adequate and there is a significant different between the mean perception of rural and urban teachers on the extent of the implementation of the basic science programme curriculum in Nasarawa state. It has been proved in the course of this study that there is no significant difference in the mean achievement scores of male and female students in basic science achievement test for junior secondary School students in Nasarawa state. It has also been proved that Nasarawa state has enough qualified teachers that can enhance the implementation of the basic science programme in junior secondary schools. Furthermore, it has been proved that the facilities available for the implementation of basic science programme are inadequate and underutilized. Recommendations were proffered to enhance the effective implementation of basic science programmes in Nasarawa state.

**Keywords:** Basic science, programme, curriculum content, implementation, material resources

## Introduction

The importance of science and technology to national development in the life of any country cannot be over-emphasized. This is because knowledge and skills in science and technology are very vital in the development of any society. Ameh and Dantani [1] point out that, the fast-changing applications of science and technology and the global reliance on its processes and products in all areas of human endeavor have made them invaluable that any society or country without them risks being alienated from the global village.

The benefits of science and technology have transverse every conceivable sphere of human life. For example, man's ability to produce high quality goods and services has improved tremendously. New drugs, vaccines, sophisticated equipment and tools have been produced which are helping in the diagnosis and treatment of various diseases thereby enhancing longevity.

Basic Science (formally Integrated Science) was introduced into the Junior Secondary School Curriculum way back in the 1980s. The programme occupies unique position in the School Curriculum because it helps to equip students with the basic scientific knowledge and skills necessary to build a progressive society and it also forms a bedrock on which further Scientific studies rest.

The objectives of the Basic Science Curriculum according to NERDC [2] include enabling students to: develop interest in science and technology, apply their basic knowledge and skills in science and technology to meet societal needs, take advantage of the numerous career opportunities offered by the study of science and technology and become prepared for further studies in science and technology, apply their scientific and technological knowledge and skills to meet societal needs, prepare for career choice in science and technology, acquire adequate laboratory and field skills in the sciences, inculcate reasonably and functionally scientific attitudes towards learning the basic science.

Laudable as the objectives of teaching Basic Science appear, one is not sure whether these objectives are achieved in Nasarawa State, Nigeria, as Akanbi [8] have shown that most primary and junior secondary schools teachers in Nigeria do not know the objectives of Basic Science let alone implementing them. Among the resources for implementation of Basic Science programme, the Basic Science Teachers occupy a strategic position as the quality of teachers in any educational programme determines, to a large extent, the quality of the system itself [4–7]. By implication,

quality teachers are needed to achieve the goals of Basic Science Programme.

In spite of the strategic position of Basic Science teachers in the successful implementation of Basic Science programme, Researchers [8–10] stated that, most primary and secondary schools in Nigeria are understaffed in the area of science and many of the science teachers were poorly trained in both content and pedagogy. This, no doubt, has adverse effect on the success of Basic Science Programmes in our junior secondary schools. Is this the situation in Nasarawa State, Nigeria? This study therefore was out to assert whether these problems were still persistent in Nasarawa State, Nigeria.

The Basic Science Curriculum is student-centered and activity oriented and emphasis is laid more on learning science as a process rather than as a body of knowledge. For this purpose, the following methods were specifically recommended for the subject: discovery teaching problem solving activities, and the involvement of students in laboratory exercise [11, 12]. In the same vein, scholars [13–17] are of the opinion that for an individual to be productive and functional in a changing society, he or she must acquire the attitudes and functional skills which can only be cultivate in learners through appropriate teaching of science using innovative strategies. The Basic Science Curricula, therefore, demand a high level of competence in teaching strategies on the part teachers. The teaching strategies employed by teachers in teaching Basic Science must be consistent with the nature and philosophy of the subject. Researches [18, 19] argue that, many teachers lack the quality and competence for providing students the opportunity to engage in creative scientific inquiry.

Basic Science as a subject is experimental and best learnt by doing, a study [20] opined that experimentation in science is solely dependent on the availability of material resources such as laboratories, equipment/materials for its understanding and application, researchers [21–23] have found shortages in a number of science laboratories in most secondary schools in Nigeria. They discovered that in some schools where laboratory facilities exist, such laboratories lack the required materials resources for successful implementation of the programme. The end result of this is that emphasis is placed on the theory aspect of teaching science to the neglect of practical skill acquisition.

Furthermore, researchers like [24] have identified several challenges confronting the successive implementation of the Basic Science Programme. Prominent among these problems is the large class-size according to Basic Science Students in most of our Junior Secondary Schools. This large class-size according to some workers [25, 26] has adverse effects on the students' achievements in Basic Science. The bulging enrolment figures according to studies outstrip the existing learning space in the classrooms. With the student-teacher ratio of about 60:1, it becomes almost impossible for teacher to give individual attention to the children needing it. For a State like Nasarawa State that is in dare need of development, the need to constantly, evaluate and re-evaluate the Implementation of the Basic Science Programme cannot be over-emphasized in view of the numerous benefits derivable from the programme.

Since the establishment of Junior Secondary Schools in Nasarawa State Nigeria, we have not come across any empirical evidence in the State to show the extent to which the implementation of the Programmes in Junior Secondary School has succeeded. It is against this backdrop that this study evaluated the extent of implementation of the Basic Science Programme in Junior Secondary in Nasarawa State, Nigeria.

**Research Questions**

The following research questions were answered in the course of this study:

(a) To what extent is the curriculum content of Basic Science Programme being implemented in Nasarawa State, Nigeria?
(b) What are the facilities available for the implementation of the Basic Science Programme in Nasarawa State, Nigeria?
(c) How adequate are the facilities provided for the implementation of the Basic Science Programme in Nasarawa State, Nigeria?
(d) What are the mean achievement scores of students by gender in the Basic Science Programme in Junior Secondary School in Nasarawa State, Nigeria?

**Research Hypotheses**

The following null-hypotheses were formulated and tested at 0.05 level of significance:

**(a)** **$Ho_1$.** There is no significant difference between the mean responses of Rural and Urban teachers on the extent of implementation of the curriculum content for Basic Science programme in Nasarawa State, Nigeria.
**(b)** **$Ho_2$.** There is no significant difference in the provision of material resources for Basic Science between urban and rural junior secondary schools in Nasarawa state, Nigeria.
**(c)** **$Ho_3$.** There is no significant difference in the level of utilization of material resources between urban and rural junior secondary schools in Nasarawa State, Nigeria.
**(d)** **$Ho_4$.** There is no significant difference in the mean achievement scores of male and female students in Basic Science programme in Nasarawa State, Nigeria

## Materials and Methods

**Research design**

The research design for this study was the descriptive survey research design. The study fits into the survey design because data was collected from a representative sample of Junior Secondary Schools and Basic Science teachers for the purpose of describing in a systematic manner the fact about the extent of

implementation of Basic Science programme in the sampled schools, thereafter the findings of this work was generalized to the entire junior secondary schools in Nasarawa State of Nigeria. The study employed instruments like questionnaire and checklist for the collection of data.

**Population of the study**

The population of the study consists of 568 Junior Secondary Schools with Basic Science programme, 10,203 Junior Secondary School (JSS) Students and all the 2,578 Basic Science teachers spread across the three Senatorial Zones the state (Table 1).

**Sample and sampling techniques**

The samples for the study consisted of 278 Junior Secondary Schools, 433 Basic Science teachers and 379 Basic Science students. These samples were considered adequate because according to studies in Baumgartner, for populations of 568, 10,203 and 2, 578, sample sizes of 278, 433 and 379 were considered adequate (Table 1). The proportionate stratified random sampling technique was employed in the selection of the samples from the population.

**Table 1: Population and sampling techniques**

| S/N | Zones | No. of Schools | Teachers Population | | Total | Teachers Sampled | | Total |
|---|---|---|---|---|---|---|---|---|
| | | | Male | Female | | Male | Female | |
| 1 | A(NSZ) | 225 | 752 | 213 | 965 | 103 | 61 | 164 |
| 2 | B(NNZ) | 130 | 523 | 231 | 754 | 84 | 39 | 123 |
| 3 | C(NWZ) | 213 | 634 | 216 | 859 | 98 | 48 | 146 |
| **Total** | | **568** | **1918** | **660** | **2,578** | **285** | **148** | **433** |

**Source:** Nasarawa State Ministry of Education, 2012

**Table 2: Table of specification or test blue-print on BSAT**

| S/N | Content Areas | | Process Objectives | | Total |
|---|---|---|---|---|---|
| | | | Lower cognitive processes | Higher thinking processes | |
| | Item | Percentage (%) | 60 | 40 | 100 |
| 1 | Diseases and ecology | 21 | 7 | 5 | 12 |
| 2 | Evolution and genetics | 27 | 10 | 6 | 16 |
| 3 | Cells and its environment | 13 | 5 | 3 | 8 |
| 4 | Reproduction | 13 | 5 | 3 | 8 |
| 5 | Work, energy and power | 13 | 5 | 3 | 8 |
| 6 | Particulate nature of matter | 13 | 5 | 3 | 8 |
| | **Total** | **100** | **37** | **23** | **60** |

**Instruments**

**Instruments for data collection**

Three questionnaires were used to analyze the data obtained from the different junior secondary schools sampled that were applied to the teachers and students by the researcher who instructed them with respect to the procedures to be followed, i.e. Basic Science Material Resources Evaluation Checklist (BSMREC), Basic Science Implementation Evaluation Questionnaire (BSIEQ) and Basic Science Achievement Test (BSAT) (Table 2).

**Results and Data Analysis**

This result presents the information gathered from the questionnaires and the analysis of data obtained from the sampled 1316 JSS Students from Nasarawa State. The data were analyzed using descriptive and inferential statistics like, frequency counts, simple percentages, mean and standard deviation and chi-squire were used to test the hypotheses. However, in most instances, the data shown here are a pool of all the responses, with the exception of the situations where there was a significant difference between urban and rural schools, and where this was stated in the text.

**Research Question 1:** To what extent is the curriculum contents of Basic Science programme taught to students in Nasarawa state junior secondary schools?

Table 3, shows the extent at which curriculum content of basic science programme is taught to students in junior secondary schools. It is evident from 1 that majority of the respondents represented by 68% were of the view that basic science teachers are familiar with the curriculum for the programme. However, 32% of the respondents were of the opinion that basic science teachers are unfamiliar with the curriculum for the science programme. Again, responses in item 2 indicated that 68% of the respondents were of the view

that basic science teachers have access to the basic science curriculum. But 32% of the respondents expressed that basic science teachers do not have access to the basic science curriculum. Furthermore, from item 3, 94% of the respondents were of the idea that teachers use basic science curriculum in their teaching. But only 6% were of the view that teachers do not use basic science curriculum in their teaching. Finally, it is obvious in item 4 that 59% of the respondents were of the opinion that teachers teach the curriculum content of basic science as specified. And 41% of the respondents indicated that teachers do not teach the curriculum content of basic science as specified.

**Table 3: Descriptive statistics for curriculum content of basic science programme taught to students**

| S/N | Statement | Response Mode | | | | Total |
|---|---|---|---|---|---|---|
| | | SA | A | D | SD | |
| 1 | Basic Science teachers are familiar with the curriculum for the science programme. | 85(20) | 210(48) | 108(25) | 30(7) | 433(100) |
| 2 | Basic science teachers have access to the basic science curriculum. | 76(18) | 215(50) | 114(26) | 28(6) | 433(100) |
| 3 | Teachers use basic science curriculum in their teaching. | 101(24) | 304(70) | 10(2) | 18(4) | 433(100) |
| 4 | Teachers teach the curriculum content of basic science as specified. | 44(10) | 212(49) | 124(29) | 53(12) | 433(100) |

**SA** = strongly agree; **A** = agree; **D** = disagree; **SD** = strongly disagree

**Research Hypothesis 1:** There is no significant difference between the mean responses of rural and urban teachers on the extent of implementation of the curriculum content of basic science programme in Nasarawa State of Nigeria.

Table 4 shows the chi-square result for significant difference between the mean responses of rural and urban teachers on the extent of implementation of the curriculum content of basic science programme in Nasarawa State of Nigeria. From the table, it is evident that the calculated $X^2$ at 0.05 level of significance with 3 degrees of freedom was 6.32 which was less than the critical value of the $X^2$ which was 7.815. The null hypothesis is therefore not rejected.

Hence, there is no significant difference between the mean responses of rural and urban teachers on the extent of implementation of the curriculum content of basic science programme. The implication of this finding is that both rural and urban teachers have similar view on the extent of implementation of the curriculum content of basic science programme.

**Table 4: Chi-square contingency table for teachers on the extent of implementation of the curriculum content of basic science programme**

| Response model | Observed Values | | | Expected Values | | |
|---|---|---|---|---|---|---|
| | School Location | | | School Location | | |
| | Urban | Rural | Total | Urban | Rural | Total |
| **SA** | 16 | 26 | 42 | 24 | 18 | 42 |
| **A** | 104 | 96 | 200 | 114 | 86 | 200 |
| **D** | 93 | 22 | 115 | 66 | 49 | 115 |
| **SD** | 34 | 42 | 76 | 43 | 33 | 76 |
| **Total** | **247** | **186** | **433** | **Total** | **247** | **186** |

**SA** = strongly agree; **A** = agree; **D** = disagree; **SD** = strongly disagree
df = 3 α = 0.05, © SPSS version 19; $X^2_{cal} = 6.32$;
$X^2_{tab} = 7.815$;α = 0.05; df = 3

**Research Question 2:** What are the facilities available for the implementation of the basic science programme in junior secondary schools in Nasarawa State of Nigeria?

Table 5, shows the facilities available for the implementation of the basic science programme in junior secondary schools in Nasarawa State of Nigeria. It is evident from item 1 that only 13% of the schools used for the study have available service points (like: water taps, gas cylinder, electric fittings, benches, fire extinguisher, standbucket). However, 87% of the schools under consideration do not have service points for basic science programme. Again, responses in item 2 indicated that only 30% of the schools used for the study have library services (likes: basic science text books, teachers guide, students' practical text books, basic science curriculum etc.) But 70% of the schools do not have library services for basic science programme. Furthermore, it is also obvious from item 3 that only 31% of the schools used for the study have available equipment (like: microscope, specimen jars, small animal cage, aquarium, balance, spring balance etc.) However, 87% of the schools under consideration do not have equipment for basic science programme. Moreover, responses in item 4 indicated that only 36% of the schools used for the study have reagents/chemicals (like: Fehlings solutions, Sudan iii solution, hydrochloric acid, tetraoxosulphate(vi) acid, distilled water etc.). But 66% of the schools do not have reagents/chemicals for basic science programme. Finally, responses in item 5, 6 and 7 indicated that only 59%, 12% and 39% of the schools used for the study have reserved/live specimens (like; earth worms, round worms, tilapia, lizards, frogs/toads, birds etc.), charts (like: life cycles of insect, charts on respective plants and animals etc.) and models 9 (like: audio visual equipment, projector, brain nervous system, circulatory system, digestive system etc.) respectively. But 41%, 88% and 615 of the schools do not have reserved/live specimens, charts and models respectively.

**Table 5: Descriptive statistics for facilities available for the implementation of the basic science programme**

| S/N | Material Resource | Response Mode | | Total |
|---|---|---|---|---|
| | | Available | Not Available | |
| 1 | Service points | 58(13) | 375(87) | 433(100) |
| 2 | Library resources | 129(30) | 304(70) | 433(100) |
| 3 | Equipment | 133(31) | 300(64) | 433(100) |
| 4 | Reagents/chemicals | 158(36) | 275(64) | 433(100) |
| 5 | Reserved/live specimens | 254(59) | 179(41) | 433(100) |
| 6 | Charts | 53(12) | 380(88) | 433(100) |
| 7 | Models | 150(35) | 283(65) | 433(100 |

***Note: Figures in brackets are relative frequencies of the responses. Figures without brackets are absolute frequencies of the responses***

**Table 6: Chi-square contingency table for provision of material resource for basic science between urban and rural junior secondary schools**

| Material Resource | Observed Values | | | Expected Values | | |
|---|---|---|---|---|---|---|
| | Provision of material resources by school location | | | Provision of material resource by school location | | |
| | Urban | Rural | Total | Urban | Rural | Total |
| Service Points | 38 | 11 | 49 | 37 | 12 | 49 |
| Library Resource | 37 | 13 | 50 | 40 | 10 | 50 |
| Reagent/Chemicals | 33 | 6 | 39 | 32 | 7 | 39 |
| Reserve Specimens | 12 | 4 | 16 | 13 | 3 | 16 |
| Charts | 36 | 10 | 46 | 37 | 9 | 46 |
| Models | 23 | 6 | 29 | 23 | 6 | 29 |
| **Total** | **219** | **59** | **278** | **219** | **59** | **278** |

df = 6 α = 0,05, © SPSS version 19; $X^2_{cal}$ = 13.453; $X^2_{tab}$ = 12.592; α = 0.05; df = 6

**Research Hypothesis 2:** There is no significant difference in the provision of material for basic science between urban and rural junior secondary schools in Nasarawa State of Nigeria.

Table 6, shows the chi-square result for significant difference in the provision of material resources for basic science between urban and rural junior secondary schools in Nasarawa State of Nigeria. From the table, it is evident that the calculated $X^2$ at 0.05 level of significance with 6 degrees of freedom was 13.453 which was greater than the critical value of the $X^2$ which was 12.592. The null hypothesis is therefore rejected. Hence, there is a significant difference in the provision of material resources for basic science between urban and rural junior secondary schools. The implication of this finding is that there is better provision of material resources for basic science in urban schools than in rural schools.

**Research Question 3:** How adequate are the facilities provided for the implementation of the basic science programme in junior secondary schools in Nasarawa State of Nigeria?

Table 7, shows the adequacy of facilities for the implementation of the basic science programme in junior secondary schools in Nasarawa State. It is evident from item 1 that only 18% of the schools used for the study have adequate service points (like: water taps, gas cylinder, electric fittings, benches, fire extinguisher, stand-bucket). However, 82% of the schools under consideration do not have adequate service points for basic science programme. Again, responses in item 2 indicated that only 14% of the schools used for the study have adequate library services (like: basic science text books, teachers guide, students' practical text books, basic science curriculum etc.). But 86% of the schools do not have adequate library services for basic science programme. Furthermore, it is also obvious from item 3 that only 15% of the schools used for the study have adequate equipment (like: microscope, specimen jars, small animal cage, aquarium, balance, spring balance etc.). However, 85% of the schools under consideration do not have adequate equipment for basic science programme. Moreover, responses in item 4 indicated that only 13% of the schools used for the study have adequate reagents/chemicals (like: Fehlings solutions, Sudan iii solution, hydrochloric acid, tetraoxosulphate(vi) acid, distilled water etc.). But 87% of the schools do not adequate reagents/chemicals for basic science programme. Finally, responses in item 5,6 and 7 indicated that only 12%, 12% and 11% of the schools used for the study have adequate reserved/live specimens (like: earth worms, round worms, tilapia, lizards frogs/toads, birds etc.), charts (like: life cycles of insect, charts on respective plants and animals etc) and models (like: audio visual equipment, projector, brain nervous system, circulatory system, digestive system etc.) respectively. But 88%, 88% and 89% of the schools do not have adequate reserved/live specimens, charts and models respectively.

**Table 7: Descriptive statistics for facilities provided for the implementation of basic science programme**

| S/N | Material resources | Response mode | | Total |
|---|---|---|---|---|
| | | Adequate | Inadequate | |
| 1 | Service points | 78(18) | 355(82) | 433(100) |
| 2 | Library resources | 59(14) | 374(86) | 433(100) |
| 3 | Equipment | 63(15) | 370(85) | 433(100) |
| 4 | Reagents/chemicals | 58(13) | 375(87) | 433(100) |
| 5 | Reserved/live specimens | 54(12) | 379(88) | 433(100) |
| 6 | Charts | 53(12) | 380(88) | 433(100) |
| 7 | Models | 50(11) | 383(89) | 433(100) |

**Table 8: Chi-square contingency table for utilization of material resources for basic science between urban and rural junior secondary schools**

| Material Resource | Observed Values | | Total | Expected Values | | Total |
|---|---|---|---|---|---|---|
| | Provision of Material Resources by School Location | | | Provision of Material Resource by School Location | | |
| | Urban | Rural | | Urban | Rural | |
| Service Points | 25 | 21 | 46 | 25 | 21 | 46 |
| Library Resource | 27 | 26 | 53 | 29 | 24 | 53 |
| Reagent/Chemicals | 23 | 16 | 39 | 22 | 17 | 39 |
| Reserve Specimens | 12 | 14 | 26 | 14 | 12 | 26 |
| Charts | 20 | 16 | 36 | 20 | 16 | 36 |
| Models | 23 | 16 | 39 | 21 | 18 | 39 |
| Total | 153 | 125 | 278 | 153 | 125 | 278 |

df = 6 α = 0,05, © SPSS version 19; $X^2_{cal}$ = 12.101; $X^2_{tab}$ = 12.592; α = 0.05; df = 6

Table 8, shows the chi-square result for significant difference in the utilization of material resources for basic science between urban and rural junior secondary schools in Nasarawa State of Nigeria. From the table, it is evident that the calculated $X^2$ at 0.05 level of significance with 6 degrees of freedom was 12.101 which was less than the critical value of the $X^2$ which was 12.592. The null hypothesis is therefore not rejected. Hence, there is a significant difference in the utilization of material resources for basic science between urban and rural junior secondary schools. The implication of this finding is that both urban and rural schools utilize material resources for basic science adequate in their schools. Though rural schools have limited supply of material resources for basic science adequate in their schools but they make maximum utilization of these materials.

**Research Question 4:** What are the mean achievement scores of students by gender in the basic science programme in junior secondary schools in Nasarawa state of Nigeria?

Table 9, shows the mean achievement scores of students in the basic science programme in junior secondary schools in Nasarawa State of Nigeria. It is evident that the male students have the mean achievement score and standard deviation of 61.2 and 29.9 respectively. But the female students have mean achievement score and standard deviation of 48.8 and 21.3 respectively. The implication of the finding is that male students excel in basic science than their female counterparts.

**Table 9: Mean achievement scores of male and female students in basic science**

| Variable | Count | Mean | SD |
|---|---|---|---|
| Scores of Male Students in Basic Science | 221 | 61.2 | 29.9 |
| Scores of Female Students in Basic Science | 158 | 48.8 | 21.3 |

Count = 379, © SPSS version 19

**Research Hypothesis 4:** There is no significant difference in the mean achievement scores of male and female students in basic science programme in Junior Secondary schools in Nasarawa State of Nigeria.

**Table 10: T-test statistics for significant difference in the mean achievement scores of male and female students in basic science**

| Variable | Count | Mean | SD | $t_{cal}$ | $t_{cal}$ | Decision |
|---|---|---|---|---|---|---|
| Scores of Male Students in Basic Science | 221 | 61.2 | 29.9 | | | |
| Scores of Female Students in Basic Science | 158 | 48.8 | 21.3 | 1.832 | 1.645 | Reject Ho 4 |

Count = 379, df = 377, α = 0, 05, © SPSS version 19

Table 10, showed the t-test statistics results for significant difference in the mean achievement scores of male and female students in basics science in Nasarawa State of Nigeria. It is evident that at 0.05 level of significance and degree of freedom of 377, the t-test value of 1.832 which is greater than the critical value of 1.645 was obtained. Therefore, since the calculated value of t-test is greater than the critical value, the null hypothesis is rejected. Hence, there is significant difference in the mean achievement scores of male and female students in basic science in Nasarawa State of Nigeria. The Implication of the finding is that male students have higher mean achievement score in basic science than their female counterparts.

## Conclusion

Based on the findings of this study, the researcher drew the following conclusions:

1. There is no significant difference between the mean responses of rural and urban teachers on the extent of implementation of the curriculum content of basic science programme. The implication of this finding is that both rural and urban teachers have similar view on the extent of implementation of the curriculum content of basic science programme.
   The objectives for establishing the basic science Junior Secondary schools in Nasarawa State where not fully achieved.
2. In the same vein, the researcher found out that there is a significant difference in the provision of material resources for basic science between urban and rural junior secondary schools. The implication of this finding is that there is better provision of material resources for basic science in urban schools than in rural schools. The basic science teacher in the junior secondary school under review, did not fully utilizes the instructional materials.
3. There is also a significant difference in the utilization of material resources for basic science between urban and rural junior secondary schools. The implication of this finding is that both urban and rural schools utilize material resources for basic science adequate in their schools. Though rural schools have limited supply of material resources for basic science adequate in their schools but they make maximum utilization of these materials.
   Most of the recommended instructional materials for the teaching and learning of basic science where not available and even if available, they were inadequate.
4. There is significant difference in the mean achievement scores of male and female students in basic science in Nasarawa State of Nigeria. The Implication of the finding is that male students have higher mean achievement score in basic science than their female counterparts.
5. One of the greatest problems facing the implementation of basic science programme in Junior Secondary Schools in Nasarawa State were job insecurity on the part of the teachers followed by inadequate science laboratory and poor background of students in the basic science.

## Recommendations

The following recommendations were preferred based on the findings of the study:

1. Since the objectives for establishing Basic Science Junior Secondary Schools were not fully achieved, the state government through the Ministry of Education should address the issues of staffing, facilities, funding and supervision with all the seriousness it deserves. This will not only improve on the standard of implementation, but also, the quality of the products.
2. Since most of the recommended instructional materials were either not available or not adequate, the government in conjunction with the Parents Teachers Associations (PTA) should source for funds and ways of providing the necessary instructional materials. More so that, workshops, seminars and conferences aimed at training the staff on the modern techniques and importance of improvisation of necessary instructional materials should be organized by relevant authorities and schools on regular basis.
3. The study further revealed that the available instructional materials were not being fully utilized by the basic science teachers in the teaching/learning process. Therefore, the school authorities should organize in-house workshops, seminars and conferences at schools were job insecurity for teachers and aimed at educating the basic science teachers and refreshing their memories on the importance and effective use of instructional materials in the teaching-learning process on regular basis.
4. Finally, the results also revealed that the major problems affecting the implementation of basic science programme in the Junior Secondary Schools were job insecurity for the teachers and poor background by students in the basic science. Based on these the researchers' recommended that good and effective welfare packages should be put in place by government for basic science teachers during active service and on retirement. In house workshops, seminars, and conferences should be organized on regular basis for teachers on issues relating to job satisfaction, efficiency during teaching as well as educational and vocational orientation of basic science students.
5. Government on their part should ensure job security on the part of the teachers followed by provision of science laboratories and enhancement of basic science students

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