PROBLEMS ENCOUNTERED IN ORGANIZING EFFECTIVE BIOLOGY PRACTICAL IN SOME SELECTED SECONDARY SCHOOLS IN BIDA LOCAL GOVERNMENT AREA OF NIGER STATE

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MINNA, NIGERIA

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APPROVAL PAGE

This research project has been supervised and approved to meet the requirements for the award of the Nigeria Certificate in Education (NCE) in Biology Department, Niger State College of Education, Minna.

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CERTIFICATION

I certify that this research work was carried out by Muhammed, Yusuf, Abdullahi, Muhammad and Edna under my supervision.

Shehu IBRAHIM

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Date 16/12/2014

DEDICATION

This project is dedicated to Almighty Allah and to our parents.

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All praise, glory and appreciations belong to Allah (S.W.T) the cherisher and the Lord of world who has protected our health and as well given us the wisdom to undergo the course successfully.

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Abstract

The study was conducted to examine critically the problems of organizing effective Biology practical in Senior Secondary Schools within New Bussa Metropolis. It is quite obvious that problems really existed in the organizing of Biology of practical in secondary schools. It's in view of this that the research deemed it necessary to look into those problems with emphasis on the schools within New Bussa. Questionnaire was used as an instrument for data collection and frequency distribution table was used with percentage to discuss the findings. 80 copies of the questionnaire were randomly selected from each of the sampled schools. From the findings of the research, it is recommended that the teachers should inform students on the importance of Biology practical so as to motivate the students.

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CHAPTER ONE

1.0 INTRODUCTION

Biology is the scientific study of life. It comprises of botany, which deals with the study of plants, zoology which deals with the study of animals. Biological findings revealed that most of the diseases of both plants and animals can be remedied through adequate practical' which enables the biologists to know the causes of diseases and possible cures.-Therefore for any student of biology to understand, cultivate and appreciate biological attitudes, the practice or practical work is inevitable. The concept of practical is used in order to 'clarify and extend students experience of natural phenomena, and to illustrate the laws which make these phenomena predictable. Therefore this work is aimed at' looking at these problems encountered in the organization of biology practical with the view of checking-ineffectiveness in the practical work and avenues of stimulating students interest and involvement in biology practical in senior secondary schools within New Bussa Metropolis.

1.1 Statement of Problem

The purpose of this research is to make a critical analysis -of the problems encountered in organizing effective biology practical and suggestions that will enhance the effectiveness of organizing biology practical in senior secondary schools. Looking at the-way biology practical are conducted in most secondary schools gave proves that students are merely to see biology as abstract, as a result of this making them unable to develop the skills, abilities, and attitudes of Biologist.

1.2 Research Purpose

Practical is believed to be the backbone of Biology, its importance cannot be over-emphasized. The researcher hence wishes to identify those problems militating against the effective organization of biology practical in our secondary schools. Teacher's qualifications, adequacy of practical materials and number of our allocated to biology practical in the secondary schools are some of the areas the researcher will work on with the hope of suggesting possible solutions to those problems.

1.3 Research Questions

In view of the problems that are likely to be encountered in organizing effective biology practical in schools, the following questions were asked.

1. Do insufficient practical materials or laboratory equipments hinder the effective organization of biology practical?
2. Do the attitudes of the students towards biology have any effect on biology practical?
3. Are the periods allocated to biology practical in schools appropriate and sufficient?
4. Does the effectiveness or ineffectiveness of biology teachers contribute to problems encountered in biology practical?

1.4 Significance of the Study

Since students gather useful information through their active participation and intensive practical work in the process of learning, this study is therefore hoped to reveal those problems faced by the teachers in organizing biology practical in schools with the hope of solving them as to encourage and motivate the students in learning biology.

It also aimed at providing an insight into those materials, equipment, specimens and provision of laboratories so as to improve biology teaching. The study will also provide the basis for which further findings into the area could be carried out.

1.5 Scope and Limitation of the Study

This study would strictly be limited to the problems in organizing effective biology practical in some selected secondary schools in New Bussa Metropolis. In order to obtain useful and relevant information about the findings, only some selected secondary schools were used. The selected secondary schools include:-

1. Government College Bida
2. Government Girls College Bida
3. Federal Government Girls College Bida
4. Day Secondary School Eyagi Bida

The project involved sampling of opinions through the administration of questionnaires. The information gathered from the opinions were judiciously looked into with the view to suggest and recommend possible solutions to the problems.

1.6 Definition of Terms

Problems:- A matter difficult of settlement or solution or a proposition in which something is required to be constructed.

i. **Biology:** - It is the scientific study o f the life and structure of plants and animals. It can also be a science devoted to the study of living organisms.

ii. **Practical:** - Relating to, doings or action, concerned with, well adapted to, actual condition or practice.

iii. **Laboratory:** - A place for experimental work or research.

iv. **School:** - An institution for education especially primary or secondary for teaching of special subjects.

v. **Metropolis:** - A large important city often the capital city of a country or

vi. region.

CHAPTER TWO

2.0 REVIEW of Related Literature

2.1 The Importance of Biology Practical Work

Practical skills teaching and learning are crucial in the understanding and application of biological knowledge but in spite of the earlier assertion and assumption that biology is an easy science subject, the practical skills acquisition and student's conception of biology practical does not seem to prove this to be the case. Since biology is a science of life, it should be offered in all secondary schools not just as a school requirement for further science study but as a means of helping an individual to understand himself well and develop a good use and functioning of his sense as well as manipulative skills development. This is only possible through careful and correct teaching and learning of concepts, process and manipulative skills, possibly only in biology programme that is creatively practical oriented.

From the findings of early researchers, it has been found that one of the factors militating against effective teaching of science in general and biology in particular in secondary schools is the inadequacy of science apparatus or equipment (Okeke et al., 1989),

Unfortunately, in many Nigerian schools, practical biology is not taught and learnt appropriately and to the right means due to the teachers, learners and situational constraining problems. Biology practical according to Ndu (1980) is any learning experience, which involve students in activities such as observation, counting, measuring, experimenting, recording and carrying out field work. These activities are relevant to the theoretical work which involve listening to talks and taking down notes from such talks. Practical work is an aspect of great importance in the learning of biology or any other school science subject and yet one of the commonest errors observed in secondary schools is the teacher's omission of some practical and they are not included in the required practical work in their teaching. Some of the advantages of permitting pupils to do things for themselves are

a. Increase in mental potency.
b. Shift from extrinsic to intrinsic rewards.
c. Forum for alerting students on the requirements for the practical classes in biology.

On the other hand, Mani (1983) observed that in our schools today, many students perceived biology as a difficult subject because of lack of concrete illustrations and meaningful interactions with the equipment and rt has been found that concrete efforts on the part of the teacher to present the learning

materials to the students as well as permitting them to participate in manipulating such will help to reduce the complexity rate in the subject of biology as a whole.

Ndu (1998) advanced several reasons for including practical works in biology such as:

a. Promoting the idea that science is not product but process too, teaching the learner practical affords him/her the basic skill and scientific method of problem solving.
b. Knowledge obtained through practical work and experience promotes long-term memory than otherwise theoretical alone.
c. It affords the students the opportunity of a formal training in the techniques of reporting various forms of experiments and class demonstrations.
d. A realization of practical work to be predecessor to read science knowledge.
e. Practical work stimulates in learners interest in the science subject they are studying in when they are made to personally engage in useful scientific activities and experimentation.

A learner acquire more in any science learning situation when he/she is given an opportunity to do activities ranging from manipulating apparatus, classifying data, designing experiment, hypothesizing to make influence and verifying result.

Silai, (1985) remarked on teachers creativity in the teaching of practical biology discovered that the activities teachers engage in are not creative and most of the teachers are not even familiar with the concept of creativity. To make biology teachers teach students for higher achievement in practical skills, various methods, ingenuity reflective thinking skills and creativity must be employed in the teaching. Some skills of science work will promote teachers understanding of achievement of science aims. Acquisitive skills Organization skills Creative skills Manipulative skills Communicative skills Biology teachers should be oriented towards offering these skills in relative manner to biology while in training or through training programmer. It is only when teachers posses these that they can promote some in their students learning. In view of this, biology practical work was treated under:

2.2 Laboratory Method

A laboratory method is an activity carried out by an individual or a group for the purpose of making personal observation of processes, : its event. The method has been used to teach biology as:

- A means to verify biology principle, law or theory already known to students.
- A means of practicing one or more of the cognitive skills such as ability to observe, classify, measure and interpret data.

- A means of determining the relationship between cause and effect.
- A means of obtaining, understanding biological knowledge.
- Although laboratory exercise is an integrated part of biology teaching it should be used only when:

i. Laboratory practical are really needed as a means to verify a biological principles, a law or theory already known to students
ii. It is needed as a means of obtaining and learning biological information,
iii. The laboratory practical can be collated with text books and other learning abilities.

As Gloria (2001) has noted the value of the laboratory work will depend upon the position assumed by the biology teacher during biology lesson. As the teacher's position of disposal of knowledge he uses laboratory only to drill or verify. At the opposite extreme, the teacher assumed the opposite of a guide to learning and laboratory is gsed as a place where students discover knowledge. More so, view those laboratory exponents apart from involving investigating characteristics from students, taxes their creativity. In the course of work, bright students can actually spot new stems and area of investigation. Therefore, time for this way is fruitful,

Advantages of Laboratory Method

1. Laboratory method can be used to illustrate regulative principles of biology instances and secondly to do the above with as much economics as possible.
2. It leads to better retention of information and development of favourable attitude towards biology.
3. Laboratory method also provides opportunity for students to learn to use microscope, Bunsen burners, lenses and the use of other laboratory tools,
4. It also increases student's ability for critical thinking acquisition of improved understanding of basic concept, principles and facts of biology.

2.3 Demonstration Method

Demonstration method simple means displaying something. The method is used by a teacher to support explanation of topics that are being taught when a teacher shows the action of carbon dioxide on a blue tmus paper, he is presenting demonstration. The teacher can demonstrate the dissection of a toad or a rabbit for the students to watch.

Advantages of Demonstration Method

A demonstration can be used to introduce a lesson and to climax a lesson. Through demonstration, the teacher shows how to avoid breakages and accidents and shows the correct use of apparatus as well as how to secure reliable measurement and result. It allows the teacher to use

activities that ordinarily would be too dangerous for students to carry out by themselves e.g. activities involving a high voltage,

2.4 Other Related Methods

Apart from the laboratory method that can be used for teaching biology, there are still some other useful methods involving students and teachers in meaningful biological investigations. Such as ability to observe, classify and make inferences and prediction. The only difference from the laboratory method is that these methods can be carried out outside the laboratory or classroom.

2.5 Discovery Method

Discovery method is one of the strategies of biology teaching. Modern biology curricular stress student's involvement in biology activities through discovery of facts. Discovery method involves an unstructured exploration in the laboratory in which students, through his mental recesses such as observing, measuring, classifying and so forth can draw general conclusions from data which he has gathered.

Advantages of Discovery Method

i. Discovery method equips the students with means of gaining knowledge on his own through active participation and he develops his mind by using it to solve problems.

ii. The method also challenges students to find out information for themselves thus making instruction student centred, students learn to find out things themselves autonomously.

iii. Discovery method helps in realizing one of the fundamental objectives of biology teaching that is to develop manipulative skills by personal contact with materials and apparatus.

2.6 Project Method

The project method is employed by biology teachers to individualize instruction. The method is meant to provide for the needs of individual student or sometimes small groups so that those with special abilities have opportunity to fulfill themselves. It is a method in which learners learn by working on projects. It usually involves doing and making many things for which information is needed individually or group of students is given a free hand to look for problems which must be known to them.

It enables learners to acquire whole hearted purposes and to pursue the project to a satisfactory end. Learners learn to work together on selected plans by this method.

2.7 Field Trip

Field trip is an important component of biology teaching. It is an excursion taken outside the classroom for the purpose of making relevant observations and also for obtaining some specific information. If properly planned, field trip affords the students opportunity to become actively engaged in observing, collecting, classifying, studying relationship and manipulating object. It is believed that field work is an important part of any biology instruction.

Field trip is an important part of any effective science instruction, biology inclusive since a well planned field trip offers students the opportunity for the development of skills such as observing, recording, collection of data, classifying, studying relationship and manipulating object.

CHAPTER THREE

3.1 Methodology

This chapter outlines the details of sampling, instrument used for the study, data presentation and analysis of data.

3.2 Research Designed

This research is particularly designed to find out the problems that are associated to the organization and effective biology practical in some selected secondary schools Bida metropolis. And a way forward to finding solution to these problems in order to improve the teaching of practical biology.

3.3 Sampling Techniques

The sample population for the study was drawn from among the selected secondary schools Bida metropolis. Twenty students were randomly selected from each of the schools which made the total of 80 students. The students selected were all from senior secondary school. Eighty questionnaires were prepared and distributed among the students. Twenty questionnaires were distributed among twenty students of each of the schools. The questionnaires were filled and returned.

There were a total of 20 secondary schools in Bida metropolis and only four selected were used for this study. The names of the selected schools used for the research are as follows:

1. Federal Government Girls College Bida
2. Government College Bida
3. Government Girls College Bida
4. Day Secondary School Eyagi Bida

Instrument used for the Study

Questionnaire was the instrument used to collect relevant information for this study. As mentioned earlier, only student questionnaire was designed for this study. The items on the questionnaires were generated from various problems that are militating or are likely to be militating against the effective organization of biology practical in some selected secondary schools in Bida metropolis. The questionnaire embraced whether there is adequate equipment in the school laboratories, whether their laboratory is conducive for teaching and learning of biology practical, whether the biology teachers are qualified, whether the students are well informed about the importance of biology practical, whether the methods used by the teachers motivate students.

Method of Data Collection

The questionnaire prepared by the researcher was distributed among the population sample. A total number of eighty science students were used. The researcher visited all the 4 sampled secondary schools for the distribution and collection of the questionnaire.

Method of Data Analysis

Each research question was answered through the analysis of the responses obtained from the questionnaire and all were tabulated and conclusion was drawn in line with the nature of the response obtained from the respondents. The simple percentage was the statistical approach used for data analysis that is, the number of respondents to each question was converted to percentage.

CHAPTER FOUR

4.1 Introduction

This chapter is based on data analysis and presentation of findings. The information used for the data analysis was based on questionnaire.

The table below is used to analyze the data collected from the selected schools. The responses for every item were scored using frequency and percentage.

4.2 Data Analysis and Presentation

Eighty (80) copies of questionnaire were distributed out but out of eighty copies, only seventy-seven (77) copies were returned. The responses on each question asked were both Yes or No and counted according to the frequency answered,

Table 1: To Find out Whether the School have a Biology Laboratory.

Name of Schools	**Frequency**		**Percentage**	
Respondents	Yes	No	Yes	No
Federal Government Girls College Bida	20	0	100%	(% 1)%
Government Girls College Bida	17	0 IT	100%	
Day Secondary School Eyagi Bida	20		100%	0%
Ndayako Secondary School Bida	20	0	100%	0%
Total	77 L	0	100%	0%

The table above shows that 100% of the respondents said that all the schools within the area of study have biology laboratories.

Table 2: To Find out Whether there are Sufficient Practical Equipment in the Selected Schools

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	NO
Federal Government Girls College Bida	18	2	90%	10%
Government Girls College Bida	3	14	18%	82%
Day Secondary School Eyagi Bida	18	2	90%	10%
Ndayako Secondary School Bida	12	8	60%	40%
Total	51	26	64.5%	35.5%

From the above table, 64.5% of the respondents in the selected secondary schools said that the practical equipment in the schools are sufficient, while 35.5% said there are no sufficient practical equipment.

Table 3: To Find out Whether the Time Allocated for Biology Practical Sufficient and Appropriate

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Federal Government Girls College Bida	19	1	95%	5%
Government Girls College Bida	4	13	23%	76%
Day Secondary School Eyagi Bida	5	IS	25%	75%
Ndayako Secondary School Bida	10	10	50%	50%
Total	38	39	48%	52%

From the table above, it can be seen that 52% of the respondents stated that the time allocated for biology practical is not appropriate while 48% of the respondents confirmed that the time allocated for biology practical is appropriate.

Table 4: To Find out Whether Teachers Improvise Materials In case of Unavailability

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	17	3	85%	15%
Ndayako Secondary School Bida	8	9,	47%	52%
Day Secondary School Eyagi Bida	11	9	'55%	45%
Federal Government Girls College Bida	20	0	100%	0%
Total	56	21	72%	28%

Table 4: In respect to the above question, it could be seen that 72% of the respondents stated that teachers improvised incase of unavailability, while 28% said that the teachers did not improvise.

Table 5: To Find out Whether Teacher Play Guidance Role during the Practical

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	20	0	100%	0%
Ndayako Secondary School Bida	9	8	52%	47%
Day Secondary School Eyagi Bida	18	2	90%	10%
Federal Government Girls College Bida	19	1	95%	5%
Total	66	11	84%	16%

It is noted from table 5 that 84% of the respondents said that teachers play guidance role during practical while 16% said teachers did not

Table 6: To Find out Whether the Schools have Effective Biology Teachers

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	18	2	90%	10%
Ndayako Secondary School Bida	7	10	41%	58%
Day Secondary School Eyagi Bida	19	1	95%	5%
Federal Government Girls College Bida	15	5	75%	25%
Total	59	18	75%	25%

Following the analysis, it was indicated that greater number of students (75%) of the students respondents in the selected secondary schools said that the school have effective biology teachers while 25% said that there are no effective biology teachers.

Table 7: To Find out Whether Students Participate in Practical Work

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	20	0	100%	0%
Ndayako Secondary School Bida	7	10	41%	58%
Day Secondary School Eyagi Bida	20	0	100%	0%
Federal Government Girls College Bida	11	9	55%	45%
Total	58	19	74%	26%

The above table reveals that 74% of the respondents participate in practical work while 26% of the respondents states that they do not participate in practical work.

Table 8: to Find out Whether Students find Biology Practical Interesting in their Schools

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	19	1	95%	5%
Ndayako Secondary School Bida	10	7	59%	41%
Day Secondary School Eyagi Bida	20	0	100%	0%
Federal Government Girls College Bida	16	4	80%	20%
Total	65	12	83.5%	16.5%

Table 8 above reveals that 83.5% of the respondents found biology practical class very interesting in their various schools, while 16.5% of the respondents did do not find biology practical interesting.

Table 9: To Find out Whether the Location of Biology Laboratory encou 36 Biology Practical or not.

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	10	10	50%	50%
Ndayako Secondary School Bida	4	13	24%	76%
Day Secondary School Eyagi Bida	8	12	40%	60%
Federal Government Girls College Bida	9	11	45%	55%
Total	31	46	40%	60%

From the above analysis it could be seen that 60% of the respondents from selected schools answered that the location of biology laboratory did not encourage biology practical while 40% of the respondents indicated that the location of biology laboratories encourage biology practical.

Table 10: To Find out Whether the Methods used by the Teacher Motivate Students or not.

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	19	1	95%	5%
Ndayako Secondary School Bida	14	3	82%	18%
Day Secondary School Eyagi Bida				
Federal Government Girls College Bida	20	0	100%	0%
Government Girls College Bida	17	3	85%	15%
Total		7	90%	9,5%

Analysis of the table .above states that 90.5% of the respondents answered yes, i.e. the method used by the teacher in the selected schools-motivated students towards biology practical while 9.5% of the students said that the method used by biology teachers did not motivate students toward biology practical.

Table 11: To Find out Whether there are Difficulties in Biology Practical compare to other Subjects.

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	No
Government Girls College Bida	15	5	75%	25%
Ndayako Secondary School Bida	12	5	71%	29%
Day Secondary School Eyagi Bida	13	7	65%	35%
Federal Government Girls College Bida	7	13	35%	65%
Total	47	30	61.5%	38.5%

The table above shows that 61.5% of the respondents indicated that there were difficulties in biology practical compare to other subjects' while 38.5% of the respondents said that there are difficulties in biology practical compare to other subjects.

Table 12: To Find out Whether the Students attend Biology Practical Classes.

Name of Schools	Frequency		Percentage	
Respondents	Yes	No	Yes	Ho
Government Girls College Bida	19	1	95%	5%
Ndayako Secondary School Bida	1	16	6%	4%
Day Secondary School Eyagi Bida	18	2	90%	HLO% .
Federal Government Girls College Bida	1	19	5%	95%
Total	39	38	49%	51%

The analysis above reveals that greater respondents 51% of the students did not attend biology practical classes while 49% of the respondents said that they attended biology practical class.

4.3 Discussion of Findings

The data obtained from the administered .questionnaire were analyzed and presented in a tabular form using percentage method of statistical analysis. In respect to this research, the findings of the research were used to answer the questions asked in chapter 1. The findings from the analysis revealed that the time allocated to biology practical is not sufficient though some accepted that time allocated was enough which is in agreement with question number (3) which state that the period allocated to biology practical is not appropriate and insufficient. Time allocated is one of the major problems affecting biology practical in senior secondary school within New Bussa which is shown in table (3) that 52% of the respondents proved that the time is insufficient and inappropriate while 48% of the respondents says that the time allocated is sufficient and appropriate. It is observed from the data analysis that the respondents from the selected secondary schools showed that student's response to attendance in practical classes is fair and

low, most of the students do not attend practical classes which is shown in table (12). It is also relating to question number (2) which states the effect of student's attitude toward practical. The finding also revealed that larger number of the respondents showed that the teacher's methodology and contribution has positive effect in organizing biology practical. It revealed that the method used by the teachers motivated students toward biology practical. Most of the schools within the sampled, area have adequate laboratory equipment, teachers play guidance role during practical and also improvise, incase of unavailability of practical equipments. Therefore, teachers contribution has nothing to do with problems militating against organization of biology practical which answered research question number (4) that asked: does the effectiveness or ineffectiveness of biology teachers contribute to problems encountered in biology practical. Also most of the schools claim to have biology laboratories, adequate practical equipment, effective biology teachers etc. According to the findings, the following problems are revealed.

Students are not actively involved in practical biology i.e. greater number of students said they did not attend biology practical class. Location of biology laboratories in most of the schools is not conducive for practical.

The time allocated for biology practical is insufficient and inappropriate. Therefore, the above prospects in the sampled schools were revealed from the findings since the schools were not affected-by these-questions. Hence it could be said that they were not the problems militating against the organization of practical biology in the sampled schools.

CHAPTER FIVE

Conclusion

This research has revealed that, there are problems militating against the organization of biology practical in some senior secondary schools in Bida metropolis. Having collected and critically analyzed all the information gathered for this study, the researcher hereby give the following conclusion. The location of laboratories in the sampled schools did not encourage learning. This problem may be as a result of human activities causing distraction or some natural factors e.g. the environmental factors, such as wind and sunlight, effective learning cannot take place in such situations. Also students are not actively involved in practical biology and that is why students see biology as an abstract there by to understanding the subject become very difficult. The researcher also concluded that the time allocated for practical biology in the sampled schools is inappropriate and insufficient, not all practical work could be successful at any time,of the day within short period of time, thus effective learning outcome cannot be obtained if the time is not adequately planned.

Recommendations

The result of this research findings form the basis for research recommendations, these recommendations might be useful to bring a lasting solution to the few identified problems. It is hoped that it .might be useful for future researchers wishing to improve upon this study or similar one.

- In order to make Biology practical more effective, students must be active participants. It is not enough to demonstrate a process and then merely continue to repeat it while the students watch passively. The students must be made to participate individually while the teacher go round helping questioning and encouraging and must try to give attention to every member of the class.
- Biology teachers should endeavour to employ the use of field trip and project method so as to make students see the relationship between laboratory experiment and field observation and try to explore them as fully as possible.
- Biology teachers must be made to attend seminars, conferences, workshops, etc. organized by Science Teacher Association of Nigeria (STAN) in any part of the country or even outside the country. This will

serve as an avenue for updating the teacher's requirements and motivating students interest in biology practical.

- Biology teachers should also inform the students on the importance of biology practical in order to motivate the students to attend practical classes.

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APPENDIX

QUESTIONNAIRE

This questionnaire is design to find out the problems associated to the organization of effective biology practical in some selected secondary schools in Bida, Niger state. Please kindly tick the answer you considered most appropriate. The researcher will be grateful for your response and all the response given will be treated confidentially.

1. Does the school have a biology laboratory?
   Yes ( ) No ( ).
2. Are there sufficient practical equipment to carry out the practical?
   Yes ( ) No ( ).
3. Is the time allocated for biology practical sufficient and appropriate?
   Yes ( )No( ).
4. Do teacher improvise materials in the case of unavailability?
   Yes ( ) No ( ).
5. Do teacher play guidance role during the practical work?
   Yes ( )No( ).
6. Do you have effective biology teachers in your school?
   Yes ( ) No ( ).
7. Do you really have active participation in practical work?
   Yes ( ) No ( ).
8. Do you find biology practical interesting in your school?.

Yes ( ) No-( ).

9. Does the location of laboratory encourage biology practical?
   Yes ( ) No ( ).
10. Do the methods used by your teachers motivate you students?
    Yes ( ) No ( ).
11. DO you find any difficulties in biology practical compared to other subjects? Yes ( ) No ( ).
12. Do you attend biology practical class?
    Yes ( ) No ( ).