GLOBAL RESEARCH ANALYSIS

GLOBAL RESEARCH ANALYSIS

ISSN No 2277 - 8160

listed & Indexed with
International ISSN Directory, Paris



Multi-Subject Journal

Volume : 1 | Issue : 3 | August 2012 | ₹ 250/-

ISSN No 2277 - 8160

GLOBAL RESEARCH ANALYSIS

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Volume : 1 | Issue : 3 | Aug 2012 • ISSN No 2277 - 8160

Research Paper Education

Utilization Of Science Laboratories At High Schools

Dr. Praveena K. B. Department of Studies in Education,University of Mysore, Manasagangotri,Mysore

Introduction

The laboratory has been given a central and distinctive role in science education, and science educators have suggested that there are rich benefits in learning from using laboratory activities. At this time, however, some educators have begun to question seriously the effectiveness and the role of laboratory work, and the case for laboratory teaching is not as self-evident as it once seemed. A laboratory is a facility that provides controlled conditions in which scientific research, experiments, and measurement may be performed. The title of laboratory is also used for certain other facilities where the processes or equipment used are similar to those in scientific laboratories.

Scientific principles and application are thus rendered more meaningful. The National policy on Education stressed that Science should be thought scientifically; practical classroom experiments help in broadening pupil experience and develops initiative resourcefulness and co-operation.

Laboratory quality can be defined as accuracy, reliability, and timeliness of the reported test results. The laboratory results must be as accurate as possible, all aspects of the laboratory operations must be reliable, and reporting must be timely in order to be useful in a clinical or public health setting. Laboratory work is an established part of courses in Biology in higher education.

- It provides opportunities for exercise in reading scales and making Diagrams. Pupil use various hand tool like Scatulas, forceps, scissors etc.
- Acquiring of Scientific knowledge and scientific outlook, which are the two main objectives of teaching Science which can be achieved only through regular practical work in the laboratories.
- It provides opportunity for training in Scientific method.
- It serves about the creativity of the students with scientifically practical ideas.
- The things learnt by the student through purposeful activity are permanently affixed in the minds of the pupils.
- The children have the curiosity to handle things and when they do the experiments they should be satisfied.

Need and importance of the present study

It has been observed that in most of the school teachers do not make use of science equipments for transacting various science related concepts. It is a fact that the science equipments are not even available in most of the schools. Learning science through making use of science lab facilities and learning materials enables a child for science applicability of students at the elementary level. Thus the teacher has planned to take up the study in Mysore.

Utilization of lab equipments ,no doubt that it will improve the science application ability of students. Opportunities for children to carry out experiments, excursions or any kind of observation are scares even in best schools in the average schools especially the schools located in rural area even routine teaching of the described above does not take place in many cases .It is very right to read in between these lines, the quoting of Yeshpal (1992) given in the beginning of the report " A lot is taught, but little is learnt or understood.:"

National policy of Education (1986) agates that a child centered and activities based process of learning should be adopted at primary stage. According to Rousscan (1943) a child has to study through experiences .Among the different pedagogical practices followed In primary school for science teaching such as lecture method, demonstration method, project method, problem solving method etc

Operational definition:

- Utilization: Utilization refers to the rate of using laboratory equipments and learning materials during teaching. The frequency and relevance of use of laboratory equipments and learning materials also has been considered a part of utilization of laboratories.
- Science Laboratory: Laboratory means a spacious room where group of students carry out their practical activities in Chemistry, Physics and Biology.
- ***High Schools***: *9th and 10th Standard Government and Private schools of Mysore.*

Objectives of the study

- A study on utilization of available science laboratory of high schools at Mysore.
- To study the significant difference between Government and Aided school students in relation to utilization of science laboratory equipments.
- To find out the correlation between opinion of teachers and students in relation to utilization of science laboratory.
- To study the significant difference between Government and Unaided school students in relation to utilization of science laboratory equipments.
- To study the significant difference between Aided and Unaided school students in relation to utilization of science laboratory equipments.
- To find out the condition of available lab facilities for science teaching in Government, Aided and Unaided schools of Mysore.
- To study the significant difference between Government and Aided school teachers in relation to utilization of science laboratory equipments.
- To study the significant difference between Government and Unaided school teachers in relation to utilization of science laboratory equipments.
- To study the significant difference between Aided and Unaided school teachers in relation to utilization of science laboratory equipments.

Hypotheses

- There is no significant difference between Government and Aided school students in relation to utilization of science laboratory equipments.
- There is no significant difference between Government and Unaided school students in relation to utilization of science laboratory equipments.
- There is no significant difference between Aided and Unaided school students in relation to utilization of science laboratory equipments.
- There is no significant difference between Government and Aided school teachers in relation to utilization of science laboratory equipments.
- There is no significant difference between Government and Unaided school teachers in relation to utilization of science laboratory equipments.
- There is no significant difference between Aided and Unaided school teachers in relation to utilization of science laboratory equipments.
- There is no significant difference between teacher and students in relation to utilization of science laboratory equipments.

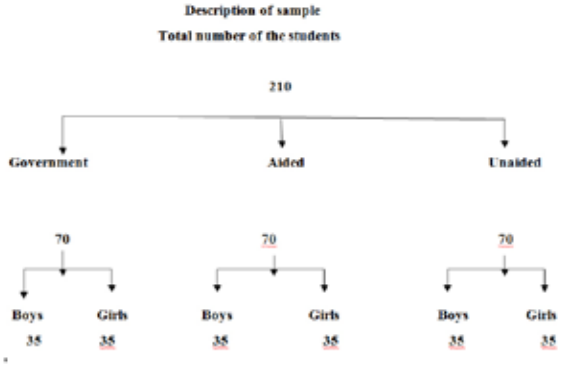
Tools used for the study:

Science Laboratory Utilization Check List prepared by the researcher

Sampling procedures

stratified random sampling was used to select schools. The process of sampling makes it possible to draw valid inference or generalization on the basis of careful observation of variables with in a relatively small

proportion of population.



Statistical techniques: t-test is used for testing all null hypotheses.

ANALYSIS AND INTERPRETATION:

Hypothesis 1

There is no significant difference between Government and Aided school students in relation to utilization of science laboratory equipments.

Group	N	Mean	Degree of freedom	t-value	Significance
Government School Students	70	1.239	138	0.48	Ns*
Aided School Students	70	1.190			

*** Not Significant at 0.05 level**

The above table shows that the obtained t-value 0.48 Is less than the table 1.98 at 0.05 levels. Therefore the above hypothesis is accepted that there is no significant difference between Government and Aided school students in relation to utilization of science laboratory equipments.

Hypothesis 2

There is no significant difference between Government and Unaided school students in relation to utilization of science laboratory equipments.

Group	N	Mean	Degree of freedom	t-value	Significance
Government School Students	70	1.239	138	0.127	Ns*
Unaided School Students	70	1.258			

*** Not Significant at 0.05 level**

The above table shows that the obtained t-value 0.127 is less than the table 1.98 at 0.05 levels. Therefore the above hypothesis is accepted that there is no significant difference between Government and Unaided school students in relation to utilization of science laboratory equipments.

Hypothesis-3

There is no significant difference between Aided and Unaided school Students in relation to utilization of science laboratory equipments.

Group	N	Mean	Degree of freedom	t-value	Significance
Aided School Students	70	1.190	138	0.61	Ns*
Unaided School Students	70	1.258			

*** Not Significant at 0.05 level**

The above table shows that the obtained t-value 0.61 is less than the table 1.98 at 0.05 levels. Therefore the above hypothesis is accepted that there is no significant difference between Aided and Unaided school students in relation to utilization of science laboratory equipments. From the above tables it is found that there is no statistical differences between Government, Aided and Unaided school students with regard to the utilization of laboratory equipments. This is pre services and in-service training programmers given to all the teachers at town level. In this period they gain more information regarding the subjects. Hence all the students and teachers are involved in science based on practical work.

Hypothesis-4

There is no significant difference between Government and Aided school teacher in relation to utilization of science laboratory equipments.

Group	N	Mean	Degree of freedom	t-value	Significance
Government School Teachers	01	0.69	1	1.251	Ns*
Aided School Teachers	01	0.73			

*** Not Significant at 0.05 level**

The above table shows that the obtained t-value 1.251 is less than the table 4.30 at 0.05 levels. Therefore the above hypothesis is accepted that there is no significant difference between Government and Aided school teacher in relation to utilization of science laboratory equipments.

Hypothesis-5

There is no significant difference between Government and Unaided school teacher in relation to utilization of science laboratory equipments.

Group	N	Mean	Degree of freedom	t-value	Significance
Government School Teachers	01	0.69	1	1.493	Ns*
Unaided School Teachers	01	0.81			

*** Not Significant at 0.05 level**

The above table shows that the obtained t-value 1.439 is less than the table 4.30 at 0.05 levels. Therefore the above hypothesis is accepted that there is no significant difference between Government and Unaided school teacher in relation to utilization of science laboratory equipments.

Hypothesis-6

There is no significant difference between Aided and Unaided school teachers in relation to utilization of science laboratory equipments.

Table 4.2.6- t - Test

Group	N	Mean	Degree of freedom	t-value	Significance
Aided School Teachers	01	0.73	1	0.47	Ns*
Unaided School Teachers	01	0.81			

*** Not Significant at 0.05 level**

The above table shows that the obtained t-value 0.47 is less than the table 4.30 at 0.05 levels. Therefore the above hypothesis is accepted that there is no significant difference between Aided and Unaided school students in relation to utilization of science laboratory equipments.

From the above tables it is found that there is no statistical differences between Government, Aided and Unaided school teachers with regard to the utilization of laboratory equipments. This is pre-services and in-service training programmers given to all the teachers at town level. In this period they gain more information regarding the subjects. Hence all the students and teachers are involved in science based on practical work.

We see activity based educational programs and refreshment training is conducted for newly selected teachers by the resource persons. Now days pre-service programs are given. Generally all the teachers are involved in the in-service and pre-service programs. Hence there is no significant difference between Government, Aided and Unaided teachers with respect to utilization of science laboratory equipments.

Educational implications

It is widely acknowledgement that lab facilities and learning materials in science teaching are essential. Regarding Biology practical work, all the Government, Aided and Unaided school students as well as respective subject teachers at town level demonstration are needed from experts or subject resource persons. Then giving opportunity to each individual student to use their ability to conduct practical work. Otherwise learning and teaching will be boring and there will be high drop out in the schools. This may lead the learners to uphold their irrational believes and activities.

All the Government ,Aided and Unaided teachers to improve the quality of teaching and also conducting practical work in Biology refresher training programs conducted by the Government at least one week during vocation. This training programs held in respective town teacher education centre and theoretical training program is necessary.

We have to adopt new Biology teaching methods and laboratory work which has been practicing in other states. Guidance and counseling is necessary for subject teachers and also Head Masters, from Block Education Officer (BEO). BEO has to supervise laboratory practical work is going on or not during the class hours at division level.

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