

A study- Mathematics Practical Laboratories of Primary Level Student Achievement Effect in Maharashtra

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Abstract: Mathematics is the foundation of all sciences and the functional role of Mathematics to science and technology is comprehensive and varied that no area of science, technology and business enterprise breaks out its application. Lack of Mathematics practical laboratory and Mathematics teacher's non-use of laboratory technique in teaching Mathematics is one of the major Factors that contribute to poor achievement in Mathematics by secondary school students. Therefore the study is designed to find out the effects of using MEN in teaching on the achievement of upper primary school Mathematics Students. "Mathematics is the way to settle in mind a habit of reasoning. Also Mathematics is the gate and key of science" by Bekan On account of such factors many students find maths a very tough subject. To help the students to remove the apprehensions about the subject, 'parcticals' is the best tool. Also it will help in inculcating the higher order thinking required for application type problems. This will also boost their self confidence. As a small number of student is required for every practical session, there can be very good rapport built up between a student and a teacher. This will result into two fold effects. The teacher be able to monitor students, progress and a student can develop some techniques wherever possible to solve the problem which will help in all the future competitive examinations and research of Mathematics.

Key Words: Mathematics, Laboratories, Primary Level, Achievement, Effect.

1. INTRODUCTION :

Mathematics is very useful subject for most vacations and higher specialized courses of learning. But everybody who is studying it in the school is not going to be an accountant, Engineer or Statistician etc. Therefore the duty of the school is to give to the high school students a broad view of what she/ he is capable of achieving in future. She / he should get a broader course to be able to choose a suitable line out of that. At the university stage most of the physical and social sciences require the application of Mathematics. To deprive the students of the knowledge skill performance and the ability of this Mathematics subject at the high school stage, means narrowing the choice of their career. Ability of student or an individual regarding acquiring knowledge skill and appreciation to logical reasoning, abstract reasoning, numerical ability, space relation and solve problems in mathematics may be called a Mathematical aptitude. This study is important for improving "A study – Mathematics practical laboratories of primary level student achievement effect in Maharashtra."

1.1. Objects of the study :

- To find out difference between boys and girls students in their Maths practical laboratory in their primary school students.
- To find out difference between rural and urban area students in their Maths Laboratory primary school students.
- To find out difference between boys and girls students in their achievement Effect in Maths in primary school students.
- To find out inference between rural and urban students in their achievement effect in primary school students.
- To find out difference among types of school in their achievement effect Maths in primary school students

2. RESEARCH METHODS (DESIGN STUDY): Normative experimental Method Studies, describes and interprets what exists at present. A random sample of 450 primary school student in 8 primary schools to location in Maharashtra

2.1. Review of literature:-

- 1) Donnipad Manjunath: use of Mathematics laboratory for teaching Mathematics.

Objective: * To study various mathematics methods of teaching mathematics in regular classes. * To study teacher's opinions about mathematics laboratory. * To develop a strategy for use in a mathematics laboratory setup.

Methodology :- Assumption teachers are not using mathematics laboratory as an alternate platform for teaching mathematics. The study developed a strategy for teaching mathematics in a mathematics laboratory. It found use of mathematics laboratory was more effective than the traditional method.

Results:- Mathematics teaching could be carried out in a mathematics laboratory by integrating mathematics laboratory into regular curriculum. The strategy developed was a new way of teaching mathematics. Mathematics teachers could be provided ample training in using this strategy by including this strategy in teacher training curricula.

- 2) **Paolo Di Sia (2015)** : The laboratory of mathematics in primary school, a practical approach for understanding and learning free university of Balzano Bozen via Ratisbona 16, 39042 Bressanone Brixen, Italy. E-mail address: paolo.disia@gmail.com (International letter of social and Humanistic science vol. 44 (2015), PP. 21-28)

Objectives:- 1) It is a discipline in which we study only numbers and figures, calculating measurements and studying their properties. 2) To study mathematics does not mean to reflect on concrete but only on abstract.

Methodology:- The skills of mathematical nature are currently necessary and fundamental to properly understand and adequately use the increasing amount of scientific and technological knowledge of everyday life.

Results:- The mathematics laboratory is a stimulus for teachers for reflection focusing on specific needs and requirements normally depending on the different class. The material shown can have useful adaptations in relation to the individual situation of teachers and classes.

- 3) Margaret Sinclair, York University complexity theory and the mathematics lab-classroom. (www.complexityandeducation.com PP 57-71)

Objectives:- Complexity theory arose from studies of mathematical processes and biological systems but it has been applied in a variety of contexts. The counterpart in the classroom is every working.

Methodology:- Independent study project was carried out with four successive OAC classes. Students were required to investigate a topic using the geometer's sketchpad (Jackiw 1991), or Maple V (Maple V release 2, 1994). The work was completed after school and at lunch in the school computer lab over a period of several weeks.

Results:- * Lab configuration. * Program case of use and / or depth of option * Task design * Study opportunity to share knowledge with peers and to communicate with the teachers.

- 4) **Sabita Mahanta and Mofidusal Islam:** Attitude of secondary students towards mathematics and its relationship to achievement in mathematics (SBI Sabita Mahanta et al. Int. J. computer technology and applications, vol.3(2), 713-715 ISSN 2229-6093)

Objective of the study: * To study gender-wise difference in students' attitude towards mathematics. * To study if there is any relationship between attitude and achievement of students.

Methodology:- To obtain data, an instrument mathematics attitude scale (MAS) has been developed by the investigators. MAS consists of 32 items. The instrument uses five-point scales - strongly agree for achievement. Their marks in mathematics examination have been considered.

Conclusion:- It can be concluded that boys show more positive attitude towards mathematics than girls. Also, attitude of students and achievement are positively correlated.

3. ANALYSIS OF RESEARCH SUBJECTS:

- Name of the research title: "A study Mathematics practical laboratories of primary level student achievement effects in Maharashtra.
- Need of Research: To handle real object for experimental learning.

- Importance of Research: By handling real object for learning student get real knowledge.
- **Hypothesis of Research:**
 - The Maths practical Laboratory of the primary students school students low.
 - The Achievement in Mathematics of Primary school students in low.
 - There is no significant difference between boys and girls students in their Maths practical Laboratory in primary school students.
 - There is no significant difference between rural and urban area students in their Maths practical Laboratory in primary school students.
 - There is no significant difference between boys and girls students in their achievement in Maths in primary school students.
 - There is no significant the difference between rural and urban students in their achievement in Maths in Primary school students.
 - There is no significant the difference among different type of school in their achievement in Mathematics in primary achievement in Mathematics in primary school students.
 - There is significant relationship between the Math practical Laboratory and achievement in Mathematics of primary students.

4. RESEARCH SCOPE:-

- **Field Scope:-** This written research is limited in Maharashtra.
- **Subject Scope:-** This written research is limited for math lab school for their experiment.
- **Unit scope:-** This written research is limited for 8 primary schools syllabus of 1 to 8 standard in math lab.

5. LIMITS OF RESEARCH :-

- **Limit of Area:-** This written research is limited for 8 schools and 450 students in Maharashtra
- **Limits of Standard:** - This written research is limited for 1 to 8 Standards.
- **Limits of Subject :-** This written research is limited for math.
- **Limits of Unite:-** This written research is limited for 1 to 8 Standard of all unit.
- **Limits of Result:-** this written research will be helpful for Indian math learner.

6. INSTRUMENT USED FOR RESEARCH:-

- Maths practical laboratory inventory constructed and validated by the Becker petre (1989)
- Achievement in Mathematical practical laboratory author Bowlinstellamary. K (2008)
- The statistical techniques such as Mean, Standard Divation, " T-test, F" ratio and pearson product Moment correlation.

A) Descriptive Analysis :

The mean and SD of (i) Not achievement effect Math practical lab (ii) Achievement Effect in maths practical Lab. Scores of primary level students in Maharashtra.

Table -Ist

St. No	Variable	Number of Student	Mean	Standard D.
I	Not Achievement Effect Maths Practical Lab	450	52.97	9.90
II	Achievement Effect Maths Practical Lab	450	26.46	7.96

The mean and SD are indicates that the primary school students level of not achievement effect MPL and Achievement effect MPL in below average.

B) Deflential Analysis :

Significance of difference between the (i) boys and girls ii) Rural and urban : Not Achievement Effect M.P.L. Scores. iii) Boys and girls iv) Rural and Urban : Achievement Effects M.PL. Scores

Table IInd

Not Achievement Effect M.P.L. Scores	Students					
		N	M	SD	'T-value	
Boys		234	52.75	9.24	0.66	LS – Level of not significant
	Girls	216	53.37	10.56		
Area					1.76	LS – Level of not significant
	Rural	221	52.24	9.92		
	Urban	229	53.88	9.82		

It could be observed from student & Area computed 'T' value 0.66 and 1.76 is not significant at 0.05 level. It suggests that the primary school student and Area not significantly differ in their level of maths practical lab hence the null hypothesis is 1 and 2 is accepted.

Table IIIrd

Achievement Effect M.P.L. Scores	Students					
		N	M	SD	'T-value	
Boys		234	17.12	5.92	3.94	LS – Level of t- significant
	Girls	216	19.84	8.55		
Area					0.04	LS – Level of not significant
	Rural	221	18.38	7.90		
	Urban	229	18.48	6.90		

It could be observed from student & Area computed 'T' value 3.94 is significant and 0.04 is not significant at 0.05 level. It suggests that the primary school student and Area significant and not significantly differ in their level of Maths practical lab. Hence the null hypothesis 3.94 is rejected and 0.04 is accepted.

C) Correlation Analysis :

Significance between the level of Maths practical lab and achievement effect in Mathematics of primary school students.

Table – IVth

Variables	t" value	LS 0.05 level	LS-Level of Not significance
Maths Practical lab and achievement effect in maths	0.03	NS	

A close look at above table the computed 't' value 0.03 is not significant. It suggests that there is no statistically significant relationship between the level of Maths practical lab and Achievement effect in Mathematics of the primary school students. Therefore the null hypothesis is accepted.

7. RECOMMENDED:

- Learning according to the old method is more beneficial than learning by the maths experiment.
- By handling real object, learner get knowledge which they remember for long time and in their life it is very useful.
- Government of Maharashtra will make something for math experiment.
- Math learner would make different research which is useful for day life.

8. CONCLUSION :-

The study established that, the Maths practical laboratory of primary school is high. The Achievement Effect in Mathematics of primary school student also high. There is significant difference between type of boys and girls.

Rural and Urban students in their achievement Effect in Mathematics in primary school student finally there is low positive correlation for the entire sample with respect to their Maths practical lab and achievement effect in Maths.

REFERENCES:

1. Paolo Di Sia: The laboratory of mathematics in primary school a practical approach for understanding and learning free university of Balzano Boze, paolo.disia@gmail.com (International letter of social and humanistic science Vol.44 (2015) PP 21-28
2. Margaret Sinclair: York University complexity theory and the mathematics lab- classroom. (www.complexityandeducation PP57-71)
3. Sabita Mahanta and mofidusal Islam: Attitude of secondary students towards mathematics and its relationship to achievement in mathematics (SBI Sabita Mahanta et al. Int. I. Computare Technology and Applications, Vol.3 (2) 713-715 ISSN 2229-6093
4. Donnipad Manjunath: Use of mathematics laboratory for teaching Mathematics.
5. Srinivasa N (1978). A laboratory for teaching Mathematics. JSTan 9(1):22-24 Educational Research and Review Vol. 3(8)PP. 257-261. Augest 2008
6. National Curriculum Framework (2005). NCERT Publications, New Delhi
7. Central Board of secondary Education (2005). Laboratory-Guidelines to schools New Delhi.
8. Anderson. H (1989). The mathematics Teaching around the world. Mathematics Teacher. 5 (I). 13-17
9. Caputo, matthew George (2010) " Undergraduate Mathematics Students Attiturdetowards online Mathematics Education and Achievement inatlybridcalculuds course prioquest LLC Ed. D. Dissertation, Teachers college, Columbia University.
10. Dupuis, Danielle N., Medhanie. Amanuel, et al (2012) " A Multi Institutional study of the relationship between high school Mathematics Achievement and performance in introductory college Statistics " Education Research Journal. VIIInLP4-20 may