

Status of Teaching Mathematics in Secondary School of East Sikkim

Abstract

Status of Teaching Mathematics in secondary school of east district of Sikkim study revealed that teachers teaching of mathematics, Head of institutions and even students will face the tremendous types of problem in order to create or developed the mathematics as the intersecting subject among the students in secondary level. Academic achievement of students is very much depended upon the providing teaching staff, availability of maximum teaching aids and organizing the outdoors program. The study also recommended that mathematics teachers will adopt more scientific mathematics methodology like Laboratory method, Excursions and Field-trip, and Heuristic method in order to develop the scientific attitude and reasoning ability among the learners.

Keywords: Status, Mathematics Curriculum, Scientific Mathematics Methodology, Attitude and Reasoning.

Introduction

Education is considered as an important index to measure societal development. societal development can't be possible without understanding the importance of mathematics. That is why shut out mathematics from daily life, and all civilization comes to a standstill. In this world of today there is not any person who can declare that he is going to do without mathematics in his life. Mathematics is perhaps involved in every moment of life. Today, mathematics is one of the basic sciences which, is present everywhere: in psychology, in sports, in the arts, in medicine, in agriculture and food technology, in gambling, in the stock exchange market, and many other areas. As a result mathematics as a compulsory subject for students at school level recommend by Education commission (1964-66). National Curriculum Framework 2005 (NCF 2005) and National policy of Education (1986) has also considered the importance of mathematics in general education and suggest that mathematics should be visualized as the vehicle to train a child to think, reason analyze and to articulate logically, Apart from being a specific subject it should be treated as concomitant to any subject involving analysis and reasoning However the status of teaching mathematics is very poor in almost every where around the world as found by studies Dev (1979), Jain and Burad(1988), Mishra (1991) Hariharan (1992), Nagar(1988), Yadav (1988), Chel (1990), Krishna (1990).It has been a common experience almost everywhere that, mathematics is a subject which is disliked by a good number of pupils. Even among the educated there are many who hate mathematics as a subject. The mathematics teachers are even conceived now as a hard task master. Children hate him and even afraid of him. The present study is undertaken on the basis of certain consideration and keeping in mind the actual needs, in the field of educational research in Sikkim.

Review of Literature

Dev (1979) studied on teaching method popular with mathematics teacher in the school of Nagaland and found that teacher were more interested in the teacher in lecture method and had a negative reflective type questioning and method is not universally superior and inferior to the other in respect of contents, objectives, grade levels and intelligence.

Jain and Burad (1988) found that non availability of mathematics teachers, frequent teachers transfer, lack of appropriate classroom, blackboard, non availability of textbooks, lack of timely correction of homework, overburdened and uninteresting curriculum, lack of child centered teaching, insufficient period for teaching mathematics, irregular attendance of students and lack of suitable teaching aids are responsible for the low result in mathematics at secondary level in Rajasthan.



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Remarking An Analisation

Krishna (1990) has found out that there is no significant relationship between identification of problem-solving strategies and either application of problem-solving strategies or achievement of problem solving in the mathematics, through the last two are significantly correlated, the essential problems in school mathematics is how to teach problem-solving strategies to students so that they may become efficient problem-solvers.

Arekkuzhiyil. S. (2016) studied on joyful learning of mathematics. He concluded that plays and games have a great role in making learning of mathematics meaningful, realistic and life oriented and thereby make learning of mathematics a real joyful experience to the learner.

Deepa. F. (2016) studied on effectiveness of e-learning on pupil's achievement in mathematics at higher school. He concluded that the effectiveness of e-learning on achievement in mathematics is higher when compared to traditional method.

Ganesan.R. and Singh.P.(2016) conducted a studied on efficacy of behavior technology in the management of mathematics phobia. He found that behavior technologies are efficient in treating mathematics phobia.

Prasad. B. (2016) studied on effectiveness of web based instruction in terms of achievement of secondary students of jawahar Novodaya Vidyalaya. He found that achievement in mathematics of web-based instruction is significantly higher than traditional method.

Ramana. M.V. (2016) studied on comparison of private school student's attitude towards mathematics. He concluded that there was no significant difference in the attitude towards mathematics among girls and boys.

Kumari. S.(2017) conducted a study on educational interfaces between mathematics and industry. He concluded that there are great impact of mathematics and industry. He also concluded that there are stronger links between mathematics and industry will be beneficial both to the partner and to national economics.

Mehar. N.and Kaur.G. (2017) conducted a study on effect of flipped classroom model on achievement in mathematics in relation to mathematical creativity. He found that the performances of students taught through flipped classroom model are more effective than through conventional teaching strategy group in mathematics.

Objectives of the Study

The objectives of the study are to examine the status of teaching mathematics at the secondary level in Sikkim.

1. To examine the present status of mathematics education with regard to other subject in respect of achievement of mathematics
2. To make a survey of the method adopted by the teachers for the development of mathematics.
3. To make a detailed survey of mathematics laboratory and teaching aids available in schools of Sikkim.

4. To examine the problems faced by the teacher and Head of the institutions in teaching mathematics.
5. To make a detailed survey of the problems faced by students for learning mathematics in respect of the students hobby.

Hypothesis

To carry the research properly, the following null hypothesis were formed.

HO₁

There does not exist any significant difference in learning mathematics as compared to other subject.

HO₂

There is no significant difference in the level of achievement of mathematics in govt. and non-govt. school.

HO₃

Maximum numbers of teachers used the teaching aids during the classroom teaching.

HO₄

Maximum numbers of schools do not have mathematics laboratory and teaching aids available in schools.

HO₅

Maximum numbers of teachers and head of institutions do not face the problem relating to teaching mathematics.

Method

Sample of the Study

The sample for the study has been chosen from 20 (10 Govt. and 10 Non-Govt.) secondary school of east District of Sikkim. Simple random sampling is used for selection of 100 students from these schools.

Tools used for the study:

1. Pupils Questionnaire (Developed by the researcher)
2. Teacher's questionnaire (Developed by the researcher)
3. Interview schedule (Developed by the researcher)

Questionnaire for Pupils

The pupil's questionnaire consists of 25 items. Each of items seeks the information in respect of academic support. For example, items number seeks information regarding the attitude towards the mathematics, teaching aids used by the teachers, behavior of the teachers towards the students and more.

Questionnaire for Teachers Teaching Mathematics

Section A of the question contains information relating to background information of the respondents. Section B of the questionnaire contains items relating to teachers preparation of lesson before going to class, method followed by teachers, types of teaching aids available in the school, use of teaching by the teachers, preparation of low-cost teaching aids, arrangement of teaching aids, problem faced by the teachers in teaching mathematics and suggestion for teacher's for effecting teaching mathematics at secondary stage.

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Interview Schedule for Heads of the Institution

An interview schedule was prepared by the investigators for the heads of the institution. Section A of interview schedule contains information relating to background information of the heads of the institution .Section B contain information regarding supervision of the class by heads of the institution, availability of teaching aids in the school problem faced by the heads of the institution and more.

Statistical Technique of Data Collection and Analysis

For collection of the data, the technique of questionnaire and interview schedule, responding through rating was adopted and for the result and interpretation the responses were analyzes by using frequencies and percentage calculation. The technique used may be summed up as: Descriptive statistics and inferential statistics.

Delimitation of the study

For the present study it was decided to restrict the work to 20 (Govt. and Non-Govt.) secondary schools in East District of Sikkim.

Result and Discussion

Significance Difference in the Level of Achievement in Govt. and Non –Govt. schools

Management	No. of Students	Mean	Standard Deviation	'T'	Remarks
Govt.	50	43.3	13.3	2.89	significant
Non –Govt.	50	51.5	15		

Hence the study showing that there is significant difference between government and non-government school. The reason could be govern that the teachers are more interact with the students and more remedial measure should be taken by non-government teachers for the improvement in learning of mathematics and give more emphasis to developed logical and creative thinking among the students.

Method Adopted by the Teachers

Method	Percentage
Activity Method, Project Method, Discussion and Demonstration	100
Inductive and Deductive Method, Laboratory Method	58
Excursions And Field-Trip	14
Heuristic Method	0

Table shows that 100% teachers stated that they adopted the Activity method, Project method, discussion method, demonstration method. Furthermore 58% teachers stated that they adopted inductive –deductive and laboratory method of teaching. 14% of teachers will take the children for excursion and field trips but none of the teachers will adopt the heuristic method, which is most important to develop the students the interest of children towards the subjects and less percentage of teachers shows the interest in excursions and field trip which is

In Order To Verify the Hypothesis Related To the Mathematics Laboratory Available iln Their School is Calculated and Result is Presented in the Table Below. Practical Room Facilities

Grade	Teachers	Head of Institution	Students
Good	42	50	0
Average	66	50	86
Poor	0	0	14

Academic Achievement of Students in Different Subjects

Subjects	Maths	Science	English	SST	Lang
Percentage	47	54	57	57	64

Number of Students Score Below and Above 50 % Marks in Different Subject

Subject	More Than 50%	Less Than 50%
Math's	31	69
Science	40	60
English	64	36
Social science	67	33
Language	90	10

Table - (a) and (b) shows that academic achievement in mathematics subject as compare to other subjects is low. Which indicates that the student do not show the more interest in concern subjects. The above table also indicates that 31 students score more than 50% in out of a 100 students as compared to the other subjects. Therefore the status of mathematics subject is not satisfactory or low as compare to the others subjects.

important to develop the creative thinking among the children's.

Responses of Teachers, Heads of Institution and Students Regarding the Use of Teaching Aids by Mathematics Teachers

Teaching Aids	Teachers	Head of Institution	Students
Charts/Drawings	100	100	66
Mathematical equipment	86	100	50
Sketches	86	90	32
Models	86	80	12
Projector	42	60	28
Diagrams	100	100	100

Table – shows that 100% teacher, heads of institutions and 66% students stated that the teachers use the charts as a teaching aid. 86%teachers, 100% heads of institution and 50% of students stated that the teachers show the mathematical equipment to the students. 86% of teachers, 80% heads of institutions and 12% of students stated that the teachers used teaching aids or model while teaching the mathematics. 42% teachers, 60% heads of institutions and 28% students stated that used the projector. On the above stated facts that most of teachers do not used the teaching aids while teaching mathematics in school.

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The above table indicates that zero response given by students in terms of good quality of practical room. Learning by doing concept is demoralized by practical room facilities.

Problem Faced by the Teachers While Teaching Mathematics

Problem Faced by the Teachers	Percentage
Heavy work load and large size of class	14
lack of time for preparation	58
Lack of basic skills	72
Less number of period in time table	42

Table -4.8 showing that 14% of teachers face the problem of teaching mathematics due to heavy work load and large size of class. 58% of teachers face the problems of teaching mathematics due to lack of time. And 72% of teachers faced the problem of teaching mathematics due to lack of basic skills. 42% of teachers stated that they faced the problem of teaching mathematics due to fewer numbers of periods in the time table. As a result problem faced by the teachers are depend on the level of achievement and create the low interest among the students in mathematics.

Problem Faced by the Head of the Institution

Problem faced by the Head of the Institution	Percentage
Transfer of teacher in short period and Shortage of teachers in concern subject	83
Part time teachers or contractual teacher and financial support from Govt.	50

Table reveals that 83 % heads of institutions stated that they faced the problem of transfer of teacher in short period or duration and shortage of teachers in concern subjects. Furthermore 50% heads of institution stated that they faced the problem of part time teacher and lack of financial support from the State Government. Due to following problem the status of mathematics in compare to other subjects is not satisfactory.

Participation in Different Programmes

Participation in Different Programmes	Percentage
Participation in Mathematics exhibition	30
Celebration of mathematics day	20
mathematics quiz	40
Field study or study tour and Mathematics excursion	0

Table shows that 30% students will participate in mathematics exhibition and 20% students would celebrate mathematics day in school. Furthermore 40% of students will participate in mathematics quiz. None of the students participate in mathematics excursion and field study; as a result student shows the less interest and positive attitude towards the subject.

Educational Implications

The findings of the present study have implication the educational planners, academic practitioner, curriculum makers, and administrator at

different levels of education. It will help to understand the problem regarding lack of interest towards the mathematics subjects; it will enable them to take up effective measures to improve teaching mathematics.

Conclusion

The present status of teaching and learning of Mathematics is far from being satisfactory and is not due to limitations on any one single component at work. In understanding the present status of Mathematics teaching and learning, we need to introspect, the areas such as Faculty problems and basic skills, types of schools, use of teaching aids, lack of good laboratory, , lack of interactive methods of teaching and insufficient number of motivational programmed organized for creating the interest in mathematics subjects. Practical utility of the concepts learnt by children is totally missing. Students learn the concept by rote memory and reproduce the same either as homework or in tests. In order to create the positive attitude towards the mathematics, the teacher, policymakers and also government should give more emphasized on basic skills and weak foundation in primary level and clear the doubts about the usefulness and relevance of learning mathematics. It is only the positive attitude towards mathematics which can help such a technological development in a nation. A study of the attitude of pupils towards this subject therefore is an interesting one.

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