Forum for Linguistic Studies 2024, 6(1),
https://doi.org/10.24294/fls.v6i2.2135
ISSN:2705-0610 E-ISSN:2705-0602

ISSUES RELATED TO TEACHING OF MATHEMATICS IN A CLASSROOM OF CLASS EIGHTH STANDARD

Priyangee Kausik
Research Scholar,
Department of Education, Cotton University

Dr. Phunu Das Sarma
Associate Professor,
Department of Education, Cotton University

Dr. Hiren Deka
Associate Professor,
Department of Mathematics, Cotton University

Abstract

Mathematics is often considered as a difficult subject by many students. This study investigated on the issues related to teaching of mathematics in classroom by qualitative analysis method of study. For the present study the questionnaire is prepared for teachers teaching mathematics at class eighth standard. Five English medium schools under CBSE (Central Board of Secondary Education) located at Kamrup (M) district of Assam were selected as sample. The questionnaire consisting of twenty-eight questions is adopted from the 'Teacher Questionnaire Mathematics' developed for TIMSS 2015(Trends in International Mathematics and Science Study), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA) for this research study. After collecting and analysing questionnaire data, it was found that there are different issues related to the teaching methods, difficulty in reading comprehension by the students, lack of availability of devices for computer assisted teaching-learning process, lack of adequate support for using technology, teachers do not feel comfortable in using technology, too many students in a classroom, too many teaching hours for teachers, teachers do not have sufficient time to assist individual students, lack of training in in-service/professional development programme for mathematics, lack of training on the use of ICT and other computer assisted teaching learning methods in classroom teaching of mathematics at class eighth standard which may hinder the teaching learning process of mathematics.

Keywords: Lower Secondary, Mathematics, Students, Teaching.

Introduction

In the words of Shakuntala Devi, "Without mathematics, there's nothing you can do. Everything around you is mathematics. Everything around you is numbers". Mathematics is a subject that

determines individuals' functionality in any given society. Moreover, mathematical knowledge plays an essential role in understanding the concept of other subjects like science, social studies and even music and art. It encourages logical reasoning, critical thinking, creative thinking, abstract and spatial thinking, problem solving ability and even effective communication skills. Today, mathematics is used throughout the world as an essential tool in many fields, including natural science, engineering, medicine and the social science.

Significance of the Study

Many careers nowadays demand some level of mathematical knowledge and mathematical reasoning. Being in an information society requires that mathematics instruction at educational institutions be accomplished effectively and efficiently. As the world changes, so does the goal of teaching mathematics, and it becomes more crucial than ever for people to use what they have learned to solve issues in their day-to-day lives. All throughout their lives, people are forced to make mathematical judgments and employ mathematics in various scenarios. These rationales explain why mathematics instruction is offered at all educational levels, from early childhood education to postsecondary education.

Though mathematics is playing a vital role in everyone's life, but in reality, mathematics, for many students, is no less furious than a demon. Fear of mathematics is not only the case of the particular places or the persons but it is a global issue. The fear about mathematics is causing the students' negative attitude towards mathematics and hindrance the learner from focusing on the problem which they are tackling. Unfortunately, mathematics avoidance leads to less competency, exposure and mathematics practice leaving students more anxious and mathematically unprepared to realize learning goals. Hence the researcher wants study different issues related to teaching of mathematics in a classroom of class eight standard which may affect the teaching learning process of mathematics. Since the students of class eight build their foundation to go to the high school level where many different concepts of mathematics are introduced in their mathematics curriculum, hence the researcher wants to study the issues related to teaching of mathematics in a classroom of eighth standard.

Objectives of the study

To study the issues related to teaching of mathematics in a classroom of eighth standard at Kamrup (Metro) district of Assam.

Delimitations of the Study

The study has been delimited to:

1. Only the CBSE affiliated English medium co educated higher secondary schools of Kamrup (metro) district.

2. Only the teachers teaching mathematics at class eighth standard for the academic session 2023-24.

Review of related literatures: The review of literature was carried out identifying various issues various issues related to the classroom teaching of mathematics.

- **Bring challenge in mathematics classroom:**
  Papadopoulos, I. (2020). Using tasks to bring challenge in mathematics classroom. *Journal of Pedagogical Research,* 4(3), 375-386 concluded that "The whole endeavour of mathematics teaching includes a series of actions taken by the teacher. New mathematical content should be taught to all students providing at the same time teacher must support those of the student who experience difficulties with mathematical understanding but also to provide supporting experiences for those who are more capable than the others"
- **Difficulties classroom teachers encounters in teaching mathematics at primary schools:**
  Karah, Y. (2022). Difficulties Classroom Teachers Encounter in Teaching Mathematics: A Phenomenological Study. International Journal of Progressive Education, Volume 18 November 5, 2022 © 2022 INASED. In this study total seven primary school teachers were interviewed and as a result, primary school, teachers expressed many problem areas related to gain density, insufficient lesson hours, central exam-programme incompatibility reading comprehension, associating with daily life, readiness, inadequacy of economy, lack of material, distance education, fear of mathematics, peer pressure and lack of motivation.
- **Problems in teaching mathematics at upper-primary level:**
  Sethi, S. (2021). A Study on Problems in Teaching Mathematics at Upper-Primary Level of Khurda District, Odisha. DEI-FOERAA, Vol. 1, 2021, pp 1-7. The study was carried out to get insight into the problems faced by the mathematics teachers in the course of the teaching-learning process at the upper-primary level. The data were collected from twenty upper-primary teachers from Government schools in the Khurda district of Odisha. The study found that mathematics teachers at upper-primary level are facing problems in different problems in different areas – lack of time, lack of training, pedagogy, ICT integrated concepts, lack of TLM etc.
- **Problems faced by teacher in teaching mathematics at secondary level:**
  Sah, S. (2016). Problems Faced by Teacher in Teaching Mathematics at Secondary Level. A thesis submitted to department of mathematics education, central department of education, university campus, Tribhuvan University, Kirtipur, Kathmandu. The study was carried out to identify and analyse the problems faced by teachers in teaching mathematics at secondary level at Lalitpur district and also to find causes of arising such problems. The researcher found that teachers were facing problems due to construction, selection and use of teaching materials, due to lack of ICT lab and internet, due to trainer and due to lack of regular supervision from related agency.

Research Methodology

For the present study Survey method has been used by the researcher.

Population

All the teachers teach mathematics at class eighth standard have been chosen as the population.

Sample and Sampling Technique

Five English medium, CBSE (Central Board of Secondary Education) affiliated high/higher secondary schools of Kamrup (Metro) district of Assam are selected for the study. The teachers (thirteen teachers in five schools) who teach mathematics at class eighth standard in that five schools are selected for the sample of teachers for the study. Since, the modern teaching methods involves electronic devices like smart board, tablet, computers through which e-learning process can be delivered to students, hence the teachers of that schools which can give facilities for better connectivity of network along with the devices to use e-learning process are selected for the study.

Sources of Data:

Primary Data: These consists of the first-hand data collected by the investigator herself from the teachers of the schools directly.

Tools for Data Collection

In the present study, the teacher questionnaire consisting of twenty eight questions along with relevant sub questions are adopted from the 'Teacher Questionnaire Mathematics' developed for TIMSS 2015(Trends in International Mathematics and Science Study), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA) for the present study for teachers teach in class eighth standard.

Procedure for Data Collection:

The investigator personally visited the schools and met the authorities concerned to seek necessary permission from them. Then the investigator proceeded with the process of data collection by distributing the teachers' questionnaires to the teachers. It was also assured to the teachers that they have to be as honest as possible and that their responses would be kept confidential. Time of five days are given to the teachers to answer all the twenty-eight questions. After five days the questionnaires are collected from each of the teachers.

Analysis of Data

After collecting data in a research study, the next crucial step is to analysing the gathered information. Qualitative data analysis approach is the process of systematically searching and arranging the data collected through interviews, surveys and observations that the researcher accumulates to increase the understanding of the phenomena.

For analysing the data collected through teachers' questionnaire for the present study, the researcher considers eleven dimensions related to different issues of teaching of mathematics in the classrooms of the schools.

Personal information about the teachers: The teachers who teach mathematics in class eighth standard in the selected schools for the study are qualified with post graduate degree in mathematics and professional degree B.Ed. All of them have experience in teaching at least of six years. The teachers are of different age group. Some of them are male and some are female.

Teachers' preparedness for teaching: All the teachers are very well prepared for the content of mathematics need to teach the students of class eighth standard. The responses of the teachers related to the teachers' preparedness in different aspects for teaching is presented in the tabular form as below:

Sl. No.	Statement	Teachers' responses					
		Very high	High	Medium	Low	Very low	Total
a)	Teachers' understanding of the schools' curricular goal	4	7	3	_	_	13
b)	Teachers' degree of success in implementing the schools' curriculum	3	8	2	_	_	13
c)	Teachers' expectations for students' achievement	_	9	4	_	_	13
d)	Teachers working together to improve students' achievement	5	8	_	_	_	13
e)	Teacher's ability to inspire students	4	9	_	_	_	13
f)	Clarity of the school's educational objective	5	8	_	_	_	13

Parental involvement: The responses of the teachers regarding parental involvement in the school education system are given below in the tabular form:

Sl. No.	Statement	Teachers' responses					
		Very high	High	Medium	Low	Very low	Total
a)	Parental involvement in school activities		5	8	_	_	13

b)	Parental commitment to ensure that students are ready to learn		4	9	_	_	13
c)	Parental expectation for students' achievement	6	7	_	_	_	13
d)	Parental support for students' achievement		3	10	_	_	13
e)	Parental pressure for the school to maintain high academic standards	3	5	5	_	_	13

Teachers' views on the issues related to students:

(a) Eight teachers remarked as 'high' and five teachers remarked as 'medium' on the statement "Students desire to do well in school".

(b) All the teachers remarked as 'high' on the statement "Students' ability to reach school's academic goals".

(c) All the teachers remarked as 'high' on the statement "Students' respect for classmates who excel in school".

(d) Nine teachers remarked as 'agree' and four teachers remarked as 'disagree' on the statement "The students behave in an orderly manner".

(e) Nine teachers remarked as 'agree' and four teachers remarked as 'disagree' on the statement "The students are respectful of the teachers".

(f) Ten teachers remarked as 'agree' and three teachers remarked as 'disagree' on the statement "The students respect school property".

(g) According to the teachers 60%-70% of the total students in eighth grade class experience difficulties in reading comprehension of mathematics content and test items.

Teachers views on school infrastructure and availability of resources for mathematics teaching:

According to all the teachers, schools are located in a safe neighbourhood and teachers feel safe at their schools. Schools' security policies and practices are sufficient Schools has clear rules about student conduct. The rules are enforced in a fair and consistent manner.

The school buildings do not need significant repair. Adequate workplace for preparation, collaboration and meeting with students are provided to both the teachers and students. Adequate instructional materials and supplies are provided to the teachers. Classrooms are cleaned and well maintained.

Lacking in adequate technological resources and adequate support for using technology is a serious problem for the teachers. There is no availability of computers/tablets neither for the students nor for the students to use during their mathematic classroom. Though there is availability of

computers for each student in the computer laboratory but the facility is not accessible for the students and teachers of mathematics classes. Three schools do not have provision of smartboard to use during mathematics classes. Two schools have the provision of smartboard but it was not in working condition.

All the schools have the provision of mathematics laboratory and a library for all the students and teachers. Calculators are not permitted to use by the students during mathematics lessons.

Teachers' views in using technology in teaching of mathematics: Ten teachers do not feel comfortable and three teachers feel comfortable in using different technologies in teaching mathematics. But all the teachers think that it is important to use technology in mathematics teaching and also think that students can be more motivated to learn mathematics by the use of technology in the teaching learning process.

Teachers' responses on professional development activities and programmes:

(a) Eight teachers remarked as 'high' and five teachers remarked as 'medium' on the statement "Collaboration between school leadership and teachers to plan instruction"
(b) All the teachers remarked as 'high' on the statement "Amount of instruction support provided to teachers by school leadership".
(c) Three teachers remarked as 'high' and ten teachers remarked as 'medium' on the statement "School leadership's professional development".
(d) Eight teachers remarked as 'sometimes' and five teachers remarked as 'often' on the statement "Discuss how to teach a particular topic'.
(e) Eight teachers remarked as 'sometimes' and five teachers remarked as 'often' on the statement "Collaborate in planning and preparing instructional materials".
(f) All the teachers remarked as 'sometimes' on the statement "Share what I have learned from my teaching experiences"
(g) Nine teachers remarked as 'sometimes' and four teachers remarked as 'rarely' on the statement "Visit another classroom to learn more about teaching".
(h) Eight teachers remarked as 'often' and five teachers remarked as 'sometimes' on the statement "Work together to try out new ideas".
(i) Eight teachers remarked as 'often' and five teachers remarked as 'sometimes' on the statement "Work as a group on implementing the curriculum".
(j) Eight teachers remarked as 'often' and five teachers remarked as 'sometimes' on the statement "Work with teachers from other grades to ensure continuity in learning".
(k) In the past two years, all the teachers 'sometimes' participated in professional development programme related to the topics- mathematics content, mathematics pedagogy/instruction, mathematics curriculum, integrating information technology into mathematics, improving students, critical thinking and problem-solving skills, mathematics assessment and

addressing individual student's need. More over training on the use of ICT and other computer assisted teaching learning methods were rarely provided to the teachers.

(l) In the past two years, seven teachers spent 6-15 hours and six teachers spent 16-35 hours in total in formal in-service/professional development programme (e.g. workshop, seminars) for mathematics.

Teachers' views for the teaching profession:

The responses of the teachers when they were asked that how often do they feel the following about being a teacher are given below in tabular form

Sl. No.	Statement	Teachers' responses					
		Never	Rarely	Sometimes	Often	Always	Total
a)	I am content with my profession as a teacher				5	8	13
b)	I am satisfied with being a teacher at this school				5	8	13
c)	I find my work full of meaning and purpose				4	9	13
d)	I am enthusiastic about my job				4	9	13
e)	My work inspires me				3	10	13
f)	I am going to continue teaching for as long as I can				5	8	13

Teachers' extent of agreement or disagreement on various classroom issues:

The responses of the teachers when asked to respond the following statements are given below in tabular form:

Sl. No.	Statement	Teachers' responses				
		Strongly agree	Agree	Disagree	Strongly disagree	Total
a)	There are too many students in the classroom		9	4		13

b)	I have too much material to cover in class		5	8		13
c)	I have too many teaching hours		13			13
d)	I need more time to prepare for class		3	10	9	13
e)	I need more time to assist individual students		13			13
f)	I feel too much pressure from parents		2	11		13
g)	I have difficulty in keeping up with all of the changes to the curriculum			13		13
h)	I have too many administrative tasks		4	9		13

Special care for students: The responses of the teachers when asked to what extent do they teach the following types of students are given below in the tabular form:

Sl. No.	Statement	Teachers' responses			
		Not at all	Sometimes	A lot	Total
a)	Students lacking prerequisite knowledge or skills			13	13
b)	Students suffering from lack of basic nutrition		4	9	13
c)	Students suffering from not enough sleep		4	9	13
d)	Disruptive students			13	13
e)	Uninterested students			13	13
f)	Students with physical disabilities			13	13
g)	Students with mental, emotional or psychological disabilities			13	13

Teachers' responses on the statements related to the teaching of mathematics:

(1) Six teachers 'often' and seven teachers 'always 'relate the lesson to students' daily lives.
(2) Seven teachers 'often' and six teachers 'always' ask students to explain their answers.

(3) Ten teachers 'rarely' and three teachers 'sometimes' ask students to complete challenging exercises that require them to go beyond the instruction.
(4) All the teachers 'always' encourage classroom discussions among students.
(5) All the teachers 'always' link new content to students' prior knowledge.
(6) Seven teachers 'sometimes' and six teachers 'often' ask the students to decide their own problem-solving procedure.
(7) All the teachers 'always' encourage students to express their ideas in class.
(8) The teachers spent 240-280 mins per week in teaching mathematics to the students of class eighth standard at schools.
(9) Five teachers are inspiring the students with 'very high' confidence and eight teachers doing the same with 'high' confidence.
(10) Five teachers are showing the students, a variety of problem-solving strategies with 'very high' confidence and eight teachers doing the same with 'high' confidence.
(11) All the teachers are providing challenging tasks for the highest achieving students with 'very high' confidence.
(12) All the teachers are adapting their teaching to engage students' interest with 'very high' confidence.
(13) All the teachers are helping students to appreciate the value of learning mathematics with 'very high' confidence.
(14) All the teachers are assessing students' comprehension of mathematics with 'very high' confidence.
(15) All the teachers are improving the understanding of struggling students with 'very high' confidence.
(16) All the teachers are making mathematics relevant to students with 'very high' confidence.
(17) All the teachers are developing students' higher order thinking skills with 'very high' confidence.
(18) All the teachers 'always' ask the students to listen to him/her while explaining new mathematics content.
(19) All the teachers 'always' ask the students to listen to him/her while explaining how to solve problems.
(20) All the teachers 'always' ask the students to memorize rules, procedures and facts.
(21) Eight teachers 'often' ask the students to work on problems (individually or with peers) with my guidance and five teachers 'sometimes' do the same.
(22) Nine teachers 'sometimes' ask the students to work on problems for which there is no immediately obvious method of solution and four teachers 'often' do the same.
(23) All the teachers 'often' ask the students to take written test or quiz.
(24) All the teachers 'often' ask the students to work in mixed ability group.
(25) All the teachers 'often' ask the students to work in same ability group.

(26) At the time of collecting the data by the researcher, most of the topics of mathematics of class eighth standard curriculum were taught in the class room, some of them have just introduced and very few are left to introduce to the students of that class.

(27) Two teachers usually assign homework one or two times in a week, six teachers do the same three to four times in a week while five teachers always assign homework to the students of their class.

(28) Four teachers usually assign 16- 30 minutes per day, seven teachers usually assign 31-60 minutes per day and two teachers usually assign 61-90 minutes per day to the students for doing mathematics homework.

(29) All the teachers 'always' correct mathematics homework assignments done by the students and give feedback to the students.

(30) All the teachers 'sometimes' ask the students to correct their own homework.

(31) Six teachers 'sometimes' discuss the homework in class and other seven teachers 'often' do the same.

(32) All the teachers 'always' monitor whether or not the homework was completed.

(33) All the teachers always use the homework to contribute towards students' grades or marks.

(34) All the teachers give 'major emphasis' on assessment of students' ongoing work to monitor students' progress in mathematics.

(35) All the teachers give 'major emphasis' on classroom tests (for example, teacher-made or textbook tests) to monitor students' progress in mathematics.

(36) All the teachers give 'major emphasis' on national or regional achievement tests to monitor students'

FINDINGS

Through analysing the data, the researcher finds the following issues in mathematics classroom of class eighth standard:

(a) Teachers are spending more time on lecture style presentations and less time on learning by doing activity method of teaching.
(b) Students never use computers for any mathematical activity.
(c) Maximum number of teachers do not feel comfortable in using technology with their students.
(d) The teachers do not have adequate support for using technology.
(e) According to most of the teachers there are too many students in the classroom.
(f) According to the teachers they have too many teaching hours.
(g) According to the teachers they need more time to assist individual students.
(h) According to the teachers, about 60% to 70% students experience difficulties in reading comprehension of mathematics content and test items.

(i) There is no availability of working devices for computer assisted teaching learning processes for the mathematics classes in the schools.
(j) In the last two years, seven teachers spent only 6-15 hours and other six teachers spent only 16-35 hours in formal in-service/professional development programme (e.g., workshop, seminars etc.) for mathematics.
(k) According to all the teachers, training on the use of ICT and other computer assisted teaching learning methods were rarely provided to the teachers.

RECOMMENDATIONS AND CONCLUSION

In future, some of the topics related to the issues faced by the learners in a mathematics classroom , methods of effective teaching to make the students interesting for mathematics, to make the students realise the importance of mathematics in their future life, to motivate the students towards learning of mathematics using modern technologies like e-learning methods, use of technologies on the teaching learning process of mathematics and its effect on interest and achievement etc. may be adopted for study.

REFERENCES

(1) Karah, Y. "Difficulties Classroom Teachers Encounter in Teaching Mathematics: A Phenomenological Study", *EJI*, 2022, http://flies.eric.ed.gov/fulltext/EJ1364001.pdf. Accessed on 3rd June, 2023.
(2) Sethi, S. A., "Study on Problems in Teaching Mathematics at Upper-Primary Level of Khurda District, Odisha", *DEI-FOERAA*, vol. 1, 2021, pp. 1-7.
(3) Gafoor, K. A., "Leaner and Teacher Perception on Difficulties in Learning and Teaching Mathematics: Some Implications" *Paper presented on National Conference on Mathematics Teaching- Approaches and Challenges, Sub-Theme: Challenges in inculcating mathematization abilities among learners*, 21st and 22nd December, 2015. http://flies.eric.ed.gov/fulltext/ED568368.pdf. Accessed on 4th April, 2022.
(4) Dalnaik ,S. K., "A Study on Problems of Teachers in Teaching Mathematics at Higher Secondary Level of Mayurbhanj District, Odisha" *International Journal for Research in Applied Science & Engineering Technology*, vol. 10, issue 3, 2022.
(5) Papadopoulos, I., "Using tasks to bring challenge in mathematics classroom", *Journal of Pedagogical Research*, vol. 4, issue 3, 2020, pp. 375-386.