

The Problems of Secondary School Teachers towards Teaching Mathematics

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Abstract

The present study focused on the problems faced by the teachers in secondary schools to teach mathematics in Prakasam District of Andhra Pradesh, India. Mathematics occupying a prominent place in our day today life. Though it is very important, students feel it difficult to understand mathematics. Since the secondary stage of education is crucial to form the basis for an individual to lead his life with accuracy in everyday life transactions and it forms the basis for higher studies also. The subjects like Statistics, Physics and other Science subjects are also depend on Mathematics for formula calculations. Mathematics is a difficult subject for students and it is also a difficult task to teach for the teachers.

The data were collected from 100 mathematics teachers from different secondary schools by way of a questionnaire consisting of 38 items. The items covered the four problem areas namely Physical conditions, Teaching methods, Present day curriculum and Effective teaching. The tool is a self-standardized tool by way of conducting chi-square tests for item analyses. The data were analyzed by using the statistical procedures like Means, Standard, deviations, Critical ratios and F-test. Based on the results certain conclusions were drawn. On overall observation of the study some implications were given.

Introduction:

Nowadays mathematics becomes me of the part of our daily life. Because in every situation in our life is linked with mathematics when we are going to marketor shopping anything to buy mathematics involves in money matter and also in length, breadth, quality, quantity etc. are linked with mathematics.

So the mathematics teachers are also facing problems related to their school infrastructure, job satisfaction, salaries, qualifications, management problems, working areas, methodology, curriculum, teaching techniques, over crowded classes etc. some of the related studies done on these issues were kept under review studies.

Review studies:

Terrence Ross (2002) study indicated that there is a positive relationship between mathematical content knowledge and teaching approaches that are consistent with the intended curriculum. The teachers with higher content knowledge provided descriptions of teaching that emphasized operational understanding while teachers with lower content knowledge made more mathematics mistakes in their descriptions.

Roy (2000) study revealed that teachers acquiesced to the resistance by defaulting to procedural ways of knowing and doing mathematics. The failure to engage students in learning high level mathematics, emphasizing conceptual understanding resulted in

lowered expectations for low performing students and a reduced sense of efficacy for teaching these students.

Chitkara (1995) found the three strategies namely lecture discussion, inductive drill and auto instruction group discussion were found to be equally effective in terms of achievement in mathematics regarding levels of intelligence, sex and personality type. Boys and girls of super ability did not show any significant difference between their mean scores on achievement in mathematics. Girls of average ability scored significantly higher in mathematics.

Dutta (1990) found that the use of audio-visual materials leads to greater interest, clear understanding and longer retention of geometrical concepts.

Jain (1998) keeping in view of the review related to teaching mathematics in secondary schools it is felt that there were no studies at regional level or local level regarding the problems of secondary school teachers with regarding to different areas.

Problem:

In this study, the problem considered was the problems of secondary school teachers towards teaching mathematics in Prakasam district of Andhra Pradesh, India.

Variables of the study:

The socio demographic variables selected for this study were gender (Male and Female), type of management(Government and Private), area (Urban and Rural), Educational qualifications (Graduate and Postgraduate), Professional qualifications (B.Ed and M.Ed) and Teaching experience (Below 10 years, Between 10-20 years and Above 20 years).

Objectives:

To study the problems faced by secondary school teachers related to gender, type of management, area, educational qualifications, professional qualifications and teaching experience.

Hypotheses:

There are no significant differences in the opinions of teachers related to gender, type of management, area, educational qualifications, professional qualifications and teaching experience.

Tools Used:

The opinion scale was constructed and standardized by the investigator by way of item analyses using chi-square tests. According to the table values 5.99 is significant at 0.05 levels and 9.21 is significant at 0.01 levels. So the item values more than the table values are considered significant and retained for the study. All together 38 items were retained and found significant taken for the study. Each statement is having three options of agree, undecided and disagree with the scoring of 3,2 and 1 mark respectively. The range of the score of each questionnaire lies in between 38-114. All the items related to the tool are positive items and the reliability of the test is 0.75.

Administration:

The 38 item scale along with the preliminary information of mathematics teachers were collected from 40 schools from both government and private sectors. Some instructions were given to the teachers for giving responses to the scale. The scales are collected after completion of giving their responses.

Sample:

The final sample selected for the study was 100 mathematics teachers. The sample includes 68 male and 32 female, 78 government and 22 private, 37 urban and 63 rural, 73 graduates and 27 postgraduates, 95 B.Ed and 5 M.Ed and 52 below 10 yrs, 35 teachers between 10-20 yrs and 13 above 20 yrs teaching experience teachers. The sample is collected by way of random sampling method.

Statistical procedures:

The statistical procedures taken for testing the hypotheses were mean, standard deviations, critical ratios and F-Value and for conducting item analyses, Chi-square tests were used. The statistical procedures were conducted according to the formulas given by Guilford (1978) and Garret (1971).

Limitations:

- The study is limited to Prakasam district located secondary schools.
- The sample consists of 100 mathematics teachers from 40 secondary schools have taken for the study.

Results and Discussion:

Table: 1

Comparison of Problems of Teaching Mathematics at different variables

S.N.o	Variable	Category	N	Mean	SD	CR
1	Gender	Male	68	92.38	6.85	1.31
		Female	32	90.56	6.25	
2	Type of Management	Government	78	93.01	6.23	3.74**
		Private	22	86.95	6.85	
3	Area	Rural	63	92.13	7.06	0.88
		Urban	37	90.92	6.39	
4	Educational Qualifications	Graduate	73	91.82	7.00	0.36
		Post-graduate	27	91.29	6.39	
5	Professional Qualifications	B.Ed	95	92.20	8.10	0.11
		M.Ed	5	92.62	8.51	

****P<0.01**

The means, standard deviations and critical ratios of comparisons of problems of teachers in teaching mathematics at gender, type of management, area, educational and professional qualifications were tabulated in table- 1. The variable type of management differed significantly. So the null hypotheses framed between government and private school teachers are rejected. The other variables gender, area,

educational and professional qualifications are not differed significantly. So the null hypotheses framed on these variables are accepted.

Table- 2

Comparison of problems of teaching mathematics at experience

S.No	Variable	Category	N	Mean	SD	F-Value
1	Teaching Experience	Below 10 yrs	52	90.78	6.82	2.06
		Between 10-20 yrs	35	92.00	7.06	
		Above 20 yrs	13	94.38	5.45	

Not significant

The means, standard deviations and F-Value among the teaching experience variable was tabulated in table: 2. It can be understand by the table that the value is not differed significantly. According to the table value the F-Value should be greater than 3.09. But in this case it is not differed significantly. So the null hypothesis framed on teaching experience is accepted. Any how the mean scores of the three categories indicated that the problems are also increased with their experience in teaching mathematics.

Conclusions:

- There is significant difference between type of management i.e. government and private school mathematics teachers regarding problems of teaching mathematics.
- There are no significant differences between male and female, rural and urban, graduate and post-graduates, B.Ed teachers and M.Ed teachers and below 10 yrs experienced, between 10-20 yrs experienced and above 20 yrs experience teachers related to their problems of teaching mathematics.

Educational Implications:

- Various studies revealed that the proper periodical training classes should be conducted for the teachers to improve the capacity of teaching to reduce the problems while teaching mathematics.
- Enough funds should be allotted for the purchase of Audio-visual aids which are useful for effective teaching.
- Every teacher steps in to the classroom with some kind of enthusiasm will be more effective and creates interest towards mathematics in the minds of students.

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