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A Study on Competency Levels of the Mathematics Teacher at Elementary Level

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ABSTRACT

The aim of this investigation was to study the competency level of mathematics teachers and also to understand the efficacy of new pedagogy developed by Telangana state board. A sample of 56 schools and 56 mathematics teachers were selected from four districts of Telangana for the study. An interview schedule and observational checklist was developed and used for data collection. Results of the study indicate that, teachers were virtuous in organizing the content, and had great awareness about various concepts like abacus, geometry and measuring tools. Teachers were maintaining classroom discipline and were able to give more attention towards poor performing students. They were well aware of the children's needs in mathematics and were able to teach mathematics concepts with great clarity, moreover the new pedagogy have raised up the standards in providing new challenges in dealing with concepts of mathematics.

Keywords: *Mathematics, teacher competency, classroom practices and teaching learning material for mathematics*

Elementary education now is a Fundamental Right of all the children of the country. It has become necessary to provide quality elementary education to all the children in the age group of 6-14 years. With a view to translate this concern into reality, successive governments initiated various programmes the most significant being Sarva Shiksha Abhiyan (SSA) launched by the Government of India in 2001 to attain universal elementary education of satisfactory quality by 2010. Ideal class room is a place where the students and teachers can engage in talking, rehearsing ideas, probing judgments, empathizing, listening, and questioning and so on.

Besides teaching methods, the hidden curriculum that can best be described as the interpersonal exchange activities taking place between the teachers and students, referred to as class room

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transactions, are undeniably important to devise and design new educational strategies and pedagogical technology. The learning environment is critical to the quality of the higher education experience. Classroom culture and the student-to-student and teacher-to-student transactions that occur within the learning environment play a significant role in student academic performance. Various quality interventions are proposed to create a healthy atmosphere in the targeted schools that caused for the societal participation in the school activities.

The students and the teachers in the classroom primarily exchange information and involve into some observable activities which leads to incidental to learning. The study focuses only on class-room interaction and class-room transactions in mathematics subject because mathematics provides us an unlimited scope to perceive problems under three situations- concrete, abstract and intuition. The important segment of Mathematics- the ability to reason and think clearly- is extremely useful in every aspect of life. Mathematics teachers' knowledge and beliefs; attitude of thinking and decision-making; their practices and development, which contribute to the process of learning and teaching in Mathematics are important indicators of classroom transactions in mathematics class.

METHODOLOGY

The present study is aimed to study the competency level of mathematics teacher at elementary level. Ex-Post facto research design was adopted for conducting this study. Purposive sampling method was used to select the schools to observe the quality of classroom transaction for this study. A total of 56 schools from four districts, (Mahabubnagar, Warangal, Nalgonda, & Ranga Reddy district) 3 mandals were selected from each of the districts for the study.

Measurement Tools

An interview schedule and observational checklist was developed and used to conduct and understand the competency level of mathematics teachers Mathematics teachers. The collected data was coded and interpreted using frequencies and percentages.

RESULTS AND DISCUSSION

Table 1 on General classroom practices of teachers

SN	Classroom Practices	Excellent		Very Good		Good		Average		Poor	
		F	%	F	%	F	%	F	%	F	%
1	Organizing content and concepts	4	6%	12	19%	10	16%	30	47%	8	13%
2	Awareness about abacus, geometry and measuring tools	17	27%	16	25%	24	38%	6	9%	1	2%
3	Explanation skills	15	23%	12	19%	20	31%	12	19%	5	8%
4	Maintenance of classroom discipline	18	28%	24	38%	14	22%	8	13%	0	0

SN	Classroom Practices	Excellent		Very Good		Good		Average		Poor	
		F	%	F	%	F	%	F	%	F	%
5	Attention to poor performing students	17	27%	27	42%	18	28%	2	3%	0	0
6	Allowing more time to work longer on a problem	13	20%	31	48%	17	27%	3	5	0	0
7	Answering to students questions	20	31%	27	42%	15	23%	0	0	2	3
8	Feedback from students	16	25%	26	41%	18	28%	4	6%	0	0
9	Appraising students work	12	19%	8	13%	14	22%	16	25%	14	22%
10	Using teaching aids	4	6%	12	19%	13	20%	15	23%	20	31%

From the above table it was revealed that the teachers were good in organizing the content, awareness about various concepts like abacus, geometry and measuring tools. Teachers were responsive to the children and had good explanatory skills. All most all the teachers were very good in maintaining classroom discipline and were able to give more attention towards poor performing students. Teachers were giving extra time for children to solve the problems and were constantly enquiring about their understanding about the concepts. It was noted that not all teachers were appraising the students work which might help in boosting up the confidence in children Majority of the teachers were not using any teaching aids and classrooms are less stimulating without teaching aids.

Table 2 on teachers perceptions on new pedagogy

SN	Classroom Practices	Strongly Agree		Agree		Can't say		Disagree		Strongly Disagree	
		F	%	F	%	F	%	F	%	F	%
1	New Pedagogy better than earlier	34	53%	23	36%	4	6%	2	3%	1	2%
2	New pedagogy easy to understand	18	28%	39	61%	1	2%	2	3%	4	6%
3	Each concept with clear steps	16	25%	32	50%	14	22%	2	3%	1	2%
4	Trainings meeting the need of current pedagogy	23	36%	30	47%	8	12%	0	0	3	5%
5	Encouraging students to practice at the end of each chapter	22	34%	29	45%	9	14%	3	5%	1	2%
6	New Pedagogy allows students to participate in discussions	26	41%	31	48%	5	8%	0	0	2	3%
7	New pedagogy is allowing for creative thinking in students	30	47%	28	44%	4	6%	1	2%	1	2%
8	New pedagogy is enhancing student - teacher interaction	22	34%	35	55%	7	11%	0	0	0	0

From the above table it was revealed that most of the teachers agreed that the new pedagogy is better than the earlier one as it clearly distinguishes academics standards to be acquired by the students. All most all of them had said that the new pedagogy is easy to understand and it gives opportunities for children to think and solve the problems more effectively. Further to this majority of the teachers agreed that the text books were allowing students to participate in group discussions and also enhancing student teachers interaction.

Table 3 on teacher classroom transactions based on academic standards

S.No	Statement	Excellent		Very Good		Good		Average		Poor	
		F	%	F	%	F	%	F	%	F	%
1	Teacher allow children to read and identify the procedure to solve the problem	11	17%	8	13%	20	31%	15	23%	10	16%
2	Teacher using concrete objects to describe and discuss the shape concepts	8	13%	12	19%	16	25%	20	31%	8	13%
3	Teacher in detail discuss about the various steps involved in problem solving	15	23%	18	28%	20	31%	7	11%	4	6%
4	Teacher discusses various procedures to solve the problems	5	8%	9	14%	27	42%	14	22%	9	14%
5	Uses own method to teach concepts rather than textbook	8	13%	12	19%	22	34%	13	20%	9	14%
6	Connecting concepts relating adding to multiplication , parts as whole to ratio, to division, patterns and symmetry	23	36%	16	25%	14	22%	9	14%	2	3%
7	Teacher gives illustrations for better understanding	16	25%	18	28%	22	34%	8	13%	0	0
8	Teacher explains systematic procedures of adding and subtracting	27	42%	19	30%	12	19%	6	9%	0	0
9	Teacher connects mathematics to different subjects such as science, daily life like money concepts	10	16%	18	28%	13	20%	12	19%	11	17%

From the above table it was found that majority of the teachers allowed children to read and identify the procedures to solve the problem. They were good in using concrete objects to

describe the shape concepts but it was also observed that there was lack of teaching aids pertaining to subject of mathematics. All most all the teachers had explained in detail to the children about the various steps involved in solving a problem. They were also making the connection between the concepts of mathematics as it helps the children in relating the concepts such as multiplication to addition, whole to ratio and patterns and symmetry etc. Majority of the teachers were very good in giving illustrations for conceptual clarity. Teachers were also explaining the systematic procedures of addition and subtraction such as adding based on the number position in thousands, hundreds and tens.

CONCLUSION

From the results of the study, it was found that teaching practices of the teachers while teaching mathematics subject were effective and efficient in the classrooms. The competency levels of the mathematics teachers were found to be satisfactory while teaching mathematics subject in the schools. The teachers were experienced and well versed in teaching the subject of mathematics to the children.

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