



# INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact Factor: 6.078

(Volume 8, Issue 3 - V8I3-1192)

Available online at: <https://www.ijariit.com>

## Attitudes of Teachers Teaching Mathematics at Primary Level towards Activity Based Approach

Tentu Sridevi

[sridevi.nagh@gmail.com](mailto:sridevi.nagh@gmail.com)

M.R. College of Education, Viziangaram,  
Andhra Pradesh

Dr. D. Nagarajakumari

[dnagarajakumari255@gmail.com](mailto:dnagarajakumari255@gmail.com)

I.A.S.E. Andhra University, Visakhapatnam,  
Andhra Pradesh

### ABSTRACT

*This article focuses on the Attitudes of Teachers Teaching Mathematics at Primary Level towards Activity Based Approach. This paper mainly concentrated on teachers who handling mathematics at primary level towards Providing Learning Activities, Promoting Learning by doing, Developing Individual, Group and whole class work, Recognizing Individual Differences, Using the Local Environment, Creating and Interesting Class room were examined. Data were collected through a survey. The instrument consists of 91 statements deemed appropriate to know the perceptions of teachers. These statements were grouped by six functional areas. The sample of 80 respondents was considered statistically adequate and reliable for all analytical purposes.*

**Keywords:** Teachers Attitudes, Teaching Mathematics, Primary Level, Activity Based Approach

### 1. INTRODUCTION

Primary education is the most important stage in the whole educational structure. The teachers play an important role in shaping and molding the habits, the tastes, manners and above all the character of the students. In the field of primary education there are a number of methods taking predominant role in the teaching-learning process. Out of all the teaching methods, child-centered, activity based approach is the process high-lighted by the NPE (1986). The activity method is an important process in the teaching of mathematics at primary level.

In the field of Primary education the pedagogical principles are very important in making the learner autonomy and learn more. The activity based approach consists of six pedagogical principles. In the teaching of Primary school subjects, the teachers are practically using the six pedagogical principles viz., Provision of teacher generated learning activities, Promoting learning by doing, Developing individual, group and whole class work, Recognizing individual differences, Using local environment and Creating an interesting classroom.

Each pedagogical principle is having its own importance and applicable at the classroom level in the teaching and learning of mathematics. The role of the teacher is important in providing the opportunity to the learner to learn the concepts and also provide autonomy to the learners to participate in performing the activities. The role of the teacher is also important in creating the conducive atmosphere in the classroom to make the learner learn more.

In order to achieve the aims of education, the best suited approach is the activity based approach in the child centered process. In fact, this process is one of the best suitable methods that may be adopted in actual practice. In this process the role of a teacher changes from the giver of information to that of a facilitator in learning and an organizer of situations leading to more knowledge and better understanding.

The present study has been undertaken with a view to know the use of activity based approach in the teaching of mathematic at primary level as perceived by teachers. The findings of the present study may provide some useful hints to make the school teachers benefit and also to make their instructions more effective in the applications of teaching strategy in the teaching of mathematics.

## 2. STATEMENT OF THE PROBLEM

“Attitudes of Teachers Teaching Mathematics at Primary Level towards Activity Based Approach”.

In the light of the above, the present study is mainly intended to know the perceptions of teachers about the use of Activity Based Approach in Teaching Mathematics at Primary Level. The Perceptions were collected from the teachers working under different managements. The respondents which were selected from the selected schools considered ad the sampled respondents for this study.

## 3. NEED AND SIGNIFICANCE OF THE STUDY

Mathematics is a subject which manipulates elements, most of which are abstract. This makes mathematics a little more difficult to teach as well as to learn. Concrete/Semi concrete materials are effective means to develop mathematical concepts and skills. The usage of materials helps children to understand the principles of mathematical concepts and skills. Mathematical materials are effective in the learning of mathematics.

The teachers who teach at primary level, Attitudes of teachers teaching mathematics towards Activity Based Approach. The factors viz., ., Provision of teacher generated learning activities, Promoting learning by doing, Developing individual, group and whole class work, Recognizing individual differences, Using local environment and Creating an interesting classroom. This can help the primary school teachers the use of Activity based approach.

## 4. OBJECTIVES OF THE STUDY

1. To study the perceptions of teachers about the use of Activity Based Approach in Teaching Mathematics at Primary Level.
2. To study the significant differences in between male and female teachers in their perceptions towards use of Activity Based Approach in Teaching Mathematics at Primary Level.
3. To study the significant differences in between the rural and urban locality teachers in their perceptions towards use of Activity Based Approach in Teaching Mathematics at Primary Level.

## 5. HYPOTHESIS OF THE STUDY

1. There is a positive and high perception of teachers towards the use of Activity Based Approach in Teaching Mathematics at primary level.
2. There is no significant difference in between the perceptions of male and female category teachers towards use of Activity Based Approach in Teaching Mathematics at Primary Level.
3. There are no significant differences in between rural and urban locality teachers in their perceptions towards use of Activity Based Approach in Teaching Mathematics at Primary Level.

## 6. SAMPLING AND SAMPLE DESIGN

The questionnaire was administered among teachers of Primary schools of Vizianagaram districts with a view to getting the whole sample base and better results. Subjects were selected from 35 schools covering from both rural and urban mandals. The purpose and procedures for filling out the questionnaire was personally explained to the school teachers who acted as respondents. The Investigator selected Primary and U.p. Schools, covering Mandal Pari shad, Government, Municipal localities and private aided schools for this study purpose. The printed questionnaire was distributed to the selected respondents in each school. A total of 107 respondents were handled over the questionnaires. The sample of 107 respondents was considered statistically adequate and reliable for all analytical purposes.

## 7. TOOL DESCRIPTION

This study was designed as a quantitative survey by collecting the experiences of school teachers for measuring the perceptions. Drawing upon the experiences, observations and the available literature a preliminary questionnaire was drafted to collect data from the selective respondents. Thus, the entire pre-test questionnaire consisted of 91 items. The scale titled as “ Scale for measuring the perceptions of teaches towards the use of activity based approach in the teaching of mathematics at primary level”. The questionnaire mainly prepared to know the perceptions of school teachers towards the activity based approach.

## 8. STATISTICAL COMPUTATIONS

After the quantification of data, various statistical measures such as Mean, Standard Deviation, correlation, ‘t’ value and Analysis of variance (ANOVA) have been used by the investigator with the help of SPSS package and presented in this chapter.

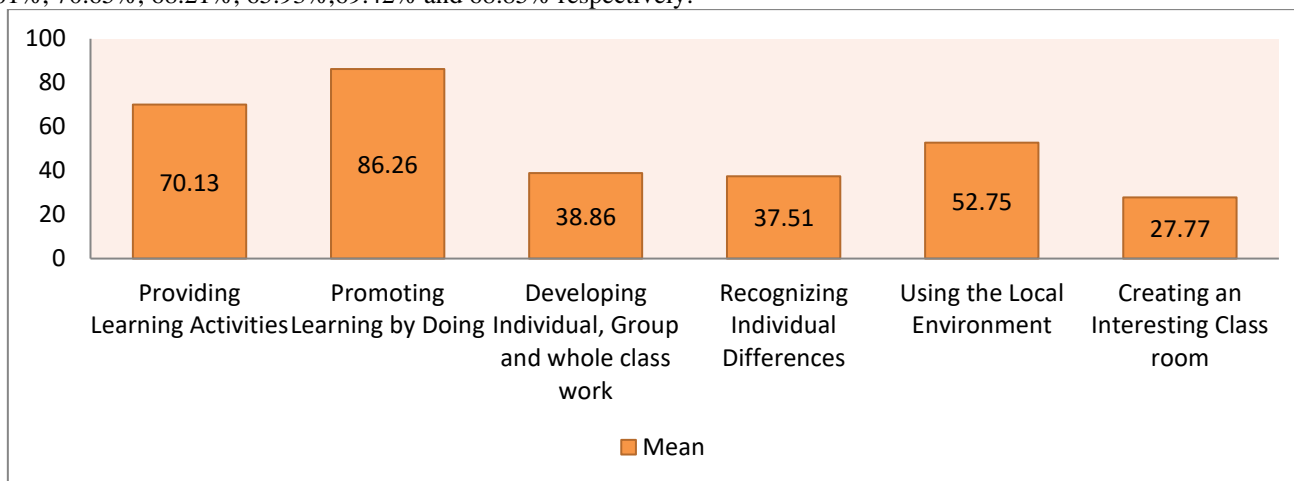
**Table -1: Overall perceptions of teachers with regard to effectiveness of Attitudes of teachers teaching mathematics at primary level towards Activity Based Approach.**

Area	N	Mini.	Max.	Percent	Mean	Std. Dev.	F- Value
Providing Learning Activities	80	52	95	70.13	70.13	9.39	6.04**
Promoting Learning by Doing	80	59	113	69.01	86.26	12.09	5.38*
Developing Individual, Group and whole class work	80	26	53	70.65	38.86	5.83	3.70*

Recognizing Individual Differences	80	26	52	68.21	37.51	5.93	4.98*
Using the Local Environment	80	39	73	65.93	52.75	7.23	5.69**
Creating an Interesting Class room	80	16	36	69.42	27.77	4.46	1.05 NS
Overall Effectiveness	80	258	402	68.85	313.28	34.90	7.97**

**\*\*Significant at 0.01 level, \*Significant at 0.05 level, NS: Not Significant**

It is observed that from Table- 1 the teachers of the primary schools having positive responses towards effectiveness of activity based approach in the teaching of Mathematics at Primary level with respect to the areas viz., Provision of teacher generated learning activities, Promoting learning by doing, Developing individual, group and whole class work, Recognizing individual differences, Using local environment and Creating an interesting classroom and overall effectiveness. The mean percentages are 70.13%, 69.01%, 70.65%, 68.21%, 65.93%,69.42% and 68.85% respectively.

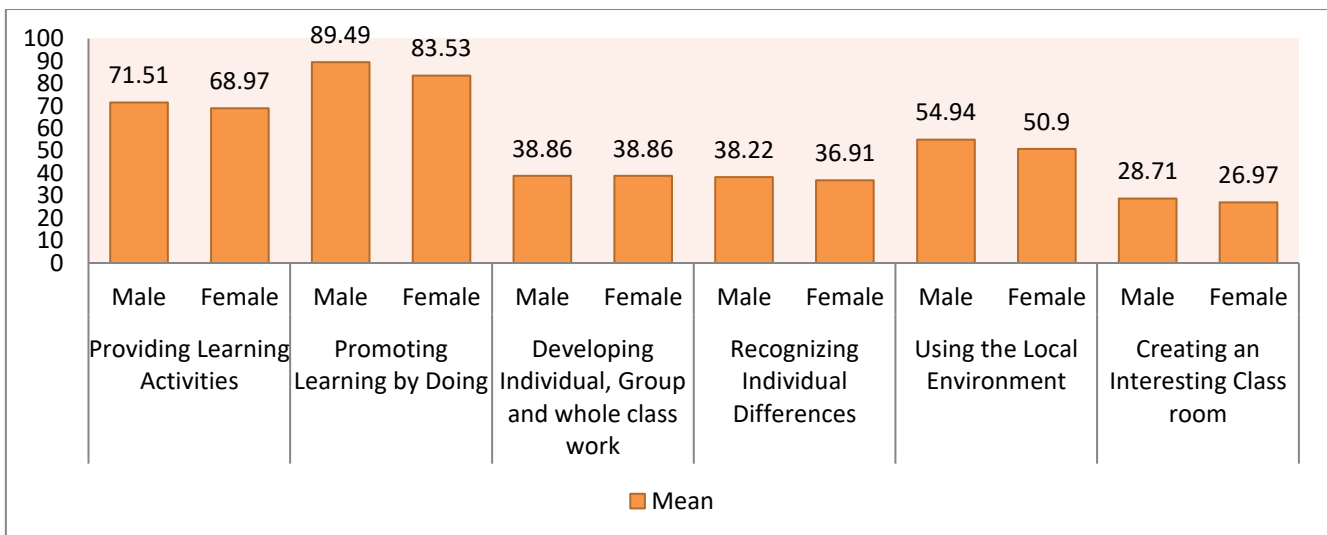


**Figure – 1 : Showing the mean percentage of teachers with regard to effectiveness of activity based approach in the teaching of Mathematics at Primary Level.**

**Table-2: Showing the significant differences in between male and female teachers with regard to effectiveness of activity based approach in the teaching of mathematics at primary level.**

Area	Sex	N	Mean	Std. Dev.	t-ratio
Providing Learning Activities	Male	40	71.51	9.30	1.40 NS
	Female	40	68.97	9.39	
Promoting Learning by Doing	Male	40	89.49	11.78	2.61**
	Female	40	83.53	11.77	
Developing Individual, Group and whole class work	Male	40	38.86	5.91	0.00 NS
	Female	40	38.86	5.82	
Recognizing Individual Differences	Male	40	38.22	6.46	1.14 NS
	Female	40	36.91	5.42	
Using the Local Environment	Male	40	54.94	7.26	2.99**
	Female	40	50.90	6.72	
Creating an Interesting Class room	Male	40	28.71	3.87	2.05*
	Female	40	26.97	4.79	
Overall Effectiveness	Male	40	321.73	34.50	2.35*
	Female	40	306.14	33.90	

**\*\*Significant at 0.01 level, \*Significant at 0.05 level, NS: Not Significant**



**Figure- 2 :Showing the mean comparison between rural and urban area teachers with regard to effectiveness of activity based approach in the teaching of Mathematics at Primary Level.**

**Table: 2** shows that the mean opinion scores of male teachers with regard to ‘Providing learning activities’ (71.51) is slightly higher than the mean of female teachers (68.97). The ‘t’ value was 1.40, which is not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples expressed one and the same opinion with regard to provision of learning activities in the Effectiveness of activity based approach in the teaching of Mathematics at Primary Level Scale. Hence, the null hypothesis is accepted.

The mean opinion scores of male teachers with regard to ‘Promoting learning by doing’ (89.49) is significantly higher than that of the mean of female teachers (83.53). The ‘t’ value was 2.61, which is significant at both 0.05 and 0.01 levels. This shows that there establishes a significant difference in the means of both male and female category samples with regard to promoting learning by doing in the effectiveness of activity based approach at primary level scale. Hence, the null hypothesis is rejected.

The mean opinion scores of male teachers with regard to ‘Developing Individual, Group and whole class work’ (38.86) is equal to than the mean of female teachers (38.86). The ‘t’ value was 0.00, which is not significant at 0.05level. This shows that there is no significant difference in the means of both the samples expressed one and the same opinion with regard to developing individual, group and whole class activities in the teaching of mathematics through activity based approach at primary level scale. It shows that both category respondents having one and the same opinion. Hence, the null hypothesis is accepted.

The mean opinion scores of male teachers with regard to ‘Recognizing Individual Differences’ (38.22) is slightly higher than the mean of female teachers (36.91). The ‘t’ value was 1.14, which was not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples with regard to recognizing individual differences in the teaching of mathematics through activity based approach at primary level scale. Both the category respondent’s having similar opinion. Hence, the null hypothesis is accepted.

The mean opinion scores of male teachers with regard to ‘Using the Local Environment’ (54.94) is significantly higher than that of the mean scores of female teachers (50.90). The ‘t’ value was 2.99, which is statistically significant at both 0.05 and 0.01 levels. This shows that there establishes a significant difference in the means of both the samples with regard to utilization of local environments when teaching Mathematics through activity approach at primary level. Hence, the null hypothesis is rejected.

The mean opinion scores of male teachers with regard to ‘Creation of an Interesting class room’ (28.71) is higher than that of the mean of female teachers (26.97). The ‘t’ value was 2.05, which is statistically significant at 0.05 level. This shows that there establishes a significant difference in the means of both the samples with reard to creation fo interesting class rooms when teaching mathematics through activity based approach at Primary Level. Hence, the null hypothesis is rejected.

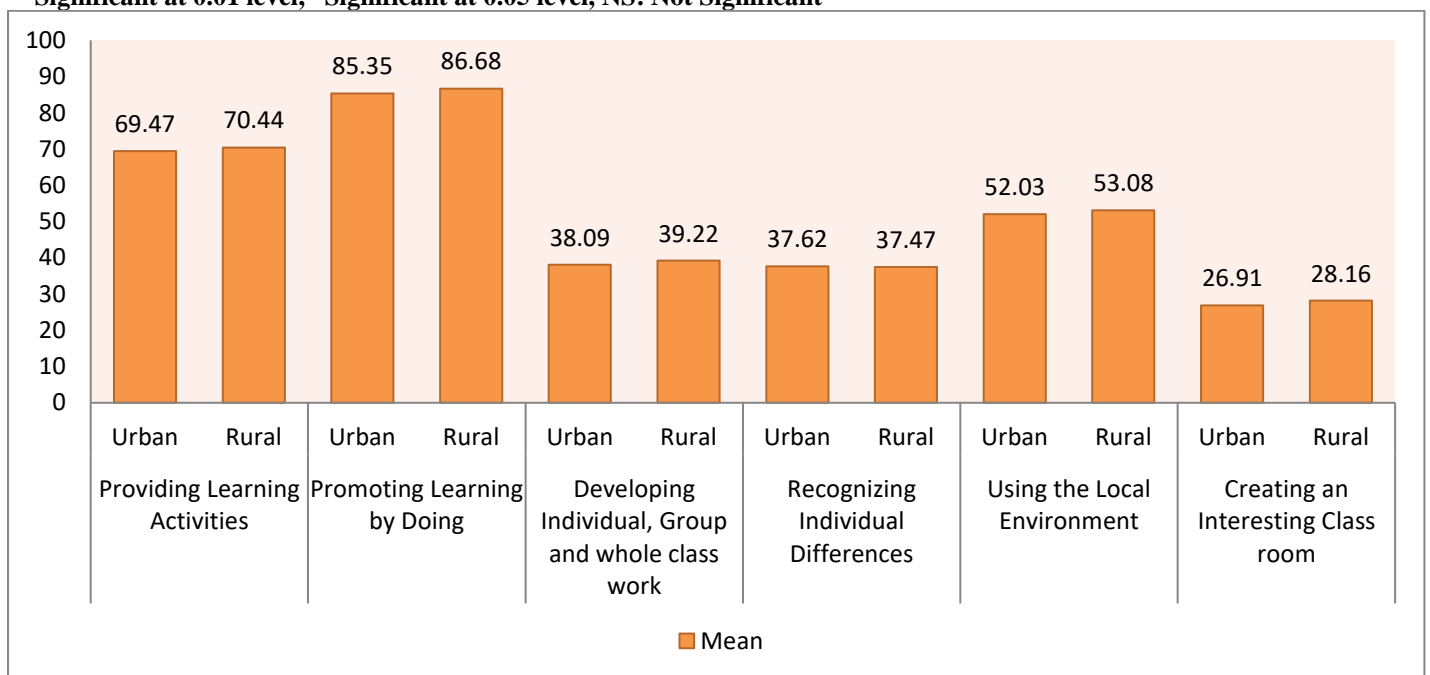
The mean opinion scores of male teachers with regard to ‘Overall Effectiveness’ (321.73) is higher than the mean of female teachers (306.14). The ‘t’ value was 2.35, which is statistically significant at 0.05 level. This shows that there is a significant difference in the means of both the samples with regard to overall effectiveness of teaching mathematics through activity based approach at primary level. Hence, the null hypothesis is rejected.

**Table-3: Showing the mean response given by teachers basing on their locality with regard to effectiveness of activity based approach in the teaching of mathematics at primary level.**

Area	Locality	N	Mean	Std. Dev.	t-ratio
Providing Learning Activities	Rural	28	69.47	8.94	0.49 NS
	Urban	52	70.44	9.64	
Promoting Learning by Doing	Rural	28	85.35	11.90	0.53 NS
	Urban	52	86.68	12.24	

Developing Individual, Group and whole class work	Rural	28	38.09	5.36	0.93 NS
	Urban	52	39.22	6.04	
Recognizing Individual Differences	Rural	28	37.62	6.06	0.12 NS
	Urban	52	37.47	5.91	
Using the Local Environment	Rural	28	52.03	7.47	0.70 NS
	Urban	52	53.08	7.14	
Creating an Interesting Class room	Rural	28	26.91	4.04	1.36 NS
	Urban	52	28.16	4.62	
Overall Effectiveness	Rural	28	309.47	30.64	0.77 NS
	Urban	52	315.05	36.78	

**\*\*Significant at 0.01 level, \*Significant at 0.05 level, NS: Not Significant**



**Figure-3: Showing the mean comparison between rural and urban area teachers with regard to effectiveness of activity based approach in the teaching of Mathematics at Primary Level.**

**Table-3** Observed that the mean opinion scores of urban area teachers in respect of ‘Providing learning activities’ (70.44) is slightly higher than that of the mean of rural area teachers (69.47). The ‘t’ value was 0.49, which is not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples and expressed one and the same with regard to providing learning activities. Hence, the null hypothesis is accepted.

The mean opinion scores of urban area teachers in respect of ‘Promoting Learning by doing’(86.68) is slightly higher than that of the mean of rural area teachers (85.35). The ‘t’ value was 0.53, which is not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples and expressed one and the same opinion with regard to Promoting Learning by doing. Hence, the null hypothesis is accepted.

The mean opinion scores of rural area teachers in respect of ‘Developing individual group and whole class work’ (37.62) is slightly higher than that of the mean of urban area teachers (37.47). The ‘t’ value was 0.53, which is not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples and expressed same opinion with regard of Developing individual group and whole class work. Hence, the null hypothesis is accepted.

The mean opinion scores of urban area teachers in respect of ‘Recognizing individual differences’ (53.08) is slightly higher than that of the mean of rural area teachers \*(52.03). The ‘t’ value was 0.70, which is not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples and voiced similar opinion with regard to recognizing individual differences. Hence, the null hypothesis is accepted.

The mean opinion scores of urban area teachers in respect of ‘Using the local environment’ (28.16) is slightly higher than that of the mean of rural area teachers (26.91). The ‘t’ value was 1.36, which is not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples and expressed same opinion with regard to using the local environment. Hence, the null hypothesis is accepted.

The mean opinion scores of urban area teachers in respect of 'Overall Effectiveness' (315.05) is slightly higher than that of the mean of rural area teachers (309.47). The 't' value was 0.77, which is not significant at 0.05 level. This shows that there is no significant difference in the means of both the samples and expressed the same opinion with regard to Overall Effectiveness. Hence, the null hypothesis is accepted.

## **9. FINDINGS AND CONCLUSIONS**

It is observed that the teachers of the primary schools having positive responses towards effectiveness of activity based approach in the teaching of Mathematics at Primary Level with respect to the areas Viz., Provision of teacher generated learning activities, Promoting learning by doing, Developing individual, group and whole class work, Recognizing individual differences, Using local environment and Creating an interesting classroom and overall effectiveness.

With regard to overall effectiveness on the effectiveness of teaching of mathematics through activity based approach, all the male group of respondents higher than the female teachers. It shows that there is a significant difference in the means of both the samples with regard to overall effectiveness of teaching Mathematics through activity based approach at Primary Level.

With regard to overall effectiveness of teaching mathematics through activities at primary level was effective and encouraging. The teachers working in urban locality perceived high than that of all the teachers, whereas, differed significantly with rural teachers. It shows that all the teachers working in different localities revealed their opinion that, the teaching of mathematics through activity based approach was effective and encouraging.

## **10. EDUCATIONAL IMPLICATIONS**

A major educational implication of the study is that the six pedagogical principles are essential to effective use of activity based approach in the teaching of mathematics. This implication indicate that the utility and effectiveness in the use of the activity based approach assumes highest importance in the teaching of mathematics and also helpful for the improvement of the primary schools. (Nagavalli 2008, in her study revealed that the teacher trainees perceptions were very encouraging and her findings correlated to the findings of this study. Sarma 1992,2006 also revealed that the activity based approach is very effective and the teaching of Mathematics through activity and Mathematics kit items is also very effective.

Another educational implication each that the role of the teacher each important in taking steps for achieving better results in schools. The better the head-teacher/teacher/teacher-trainee must be exposed to techniques and skills necessary for using the child –centered practices when teaching school subjects.

Another major educational implication of this study is that, establishment of relationships in between the pedagogical principles Viz.,

- Provision of teacher generated learning activities
- Promoting learning by doing
- Developing individual
- group and whole class work,
- Recognizing individual differences
- Using local environment and
- Creating an Interesting classroom.

It is noticed that teaching of mathematics through activities at the primary level enhances the participation level of students, interest of the learner towards mathematics and also help the learners to understand the mathematical events which are surrounded by assumes educational significance at the primary level. Hence the educational implication here is that teachers must be exposed to the techniques which are necessary for the improvement of mathematics at the primary level.

## **11. REFERENCES**

- [1] Aggarwal. S.M., : "Teaching of Modern Mathematics" Published by :J.C.Kapur, for Dhanpat Rao & Sons
- [2] Garret, H.E., : "Statistics in Psychology and Education", International Book Bureau. Hyderabad. 1979.
- [3] Nagavalli : "Status study on Activity-Based self-learning", 2008
- [4] Sarma (2005): A study of student's performance on mathematics in relation to teaching techniques.
- [5] Peter Oliva : "Teaching and Mathematics Methodology Content and Curriculum Mapping", 2005.
- [6] Kaur : "Abstract Concepts in Different Areas of Mathematics- A Factorial Study", 1985.