

Effect of TIGER method on Interest in Mathematics of IX Standard Students

S. Muthulakshmi¹, Dr. H. Deepa² ¹Research Scholar, Reg 12174, M. S. University, Tirunelveli ²Assistant Professor, M. S. University, Tirunelveli

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Abstract:

The present study visions to find out the effect of TIGER method on Interest in Mathematics among IX standard students. This is an experimental study with Pretest-Posttest Equivalent Group Design. A sample of 60 IX standard students were chosen for the study. The investigators applied Mathematical Interest Inventory to assess the Interest level. Data were analyzed using ANCOVA and t-test to determine the performance comparing the mean scores. The findings implied that the experimental group performed better than the control group in post-interest test. It is found that TIGER method had the power to enhance the interest towards mathematics better than their counterparts taught through traditional method.

INTRODUCTION

Mathematical power encompasses the ability to "explore, conjecture and reason logically, as well as the ability to use a variety of mathematical method effectively to solve nonroutine problems and the self-confidence and disposition to do so" (NCTM, 1989). Teaching Mathematics is both a challenging and stimulating endeavour. Mathematics teaching is often criticized for its emphasis on memorizing basic facts, rules and formulae. Effective mathematics teaching should aim to promote student's confidence in mathematics, curiosity, freedom and belief in doing mathematics.

The word 'Interest' is often related with mathematics achievement. It is widely common among the students, teachers and parents that mathematics should be learned with interest. In relation to the mathematics learning, interest is something important. If the children feel easy and

enjoyable to learn mathematics, eventually they will have interest in learning mathematics. Teachers play an important role in the increasing the interest in mathematics. The variety of classroom practices they use in interacting with learners' paves way for developing interest which will increase overall performance in Mathematics. The teacher can make use of devices such as mathematical games and contests, tricks, puzzles, and other recreations, multisensory aids, projects, information about the application, values, and utility of mathematics, historical notes on mathematics for developing interest in mathematics. A teacher of mathematics can make the learning very interesting and exciting thus changing the attitude and outlook of the students. Thus, now teachers follow different methods of teaching for school students to enhance the interest of the students and to foster their understanding of mathematical concepts. One such method of teaching learning mathematics which gives full



freedom to the learner is TIGER method of learning mathematics.

Expansion of TIGER format is as follows: T-Teacher as a facilitator, I-Individual work, G-Group work, E-Evaluation, R-Reinforcement

Steps in TIGER Format:

Introduction

In the introduction part the teacher gives a structure of the content and makes the student ready for the process of learning. Teacher can kindle the interest of student by effectively arousing the minds to receive the content. Teacher can make use of first 10 minutes of the hours to awaken the listening skill of the students. Introduction part calls for Evocation, Recalling and Survey.

Evocation: The teacher motivates the students by giving puzzles, mathematical games, life history of mathematicians, interesting daily life situation. Evocation part should be related to the lesson being taught.

Recall: In the recalling step, teacher asks some simple questions to check the previous knowledge of the students. Teacher can get the idea of the concepts that the children already have acquired. This helps the teacher to continue with the concept. And the teacher gets the opportunity to correct the wrong concept that the children have before proceeding to the new concepts.

Survey: Teacher after arousing the readiness to learn in the students, directs the students to have a view on the topic that's to be learned in the text book. This gives the student a clear picture of what it to learnt and how are they going to use it in solving problems. Survey embarks an idea of blueprint in the students. Teacher should make sure that all the students are curious enough to read the book and get ready for the learning process.

Understanding

The main learning process happens in the understanding section of TIGER method. Here the teacher explains all the definitions, theorems, applications, formula involved in the concept with necessary resources and activities which include the students. Teachers should use this section to provide with necessary explanations. After explaining all the concepts, the teacher solves some problems. The teacher directs the students to analyze what is given, what is to be found out in the problem. Teacher gives step by step explanations and solve the problem. Continuing further, the teacher asks the students to solve problems of same type individually in their notebooks. The role of teacher now gets altered and teacher should carefully observe the students and check whether they could proceed with their individual work. Teacher should make sure that all the students try to solve out individually.

Group Work

Group work always paves way for better understanding. Children understand better when they get explained by their peers. Teacher should form equivalent groups that comprises of students of varied intelligence. A group should contain no more than 5 or 6 students. Each group should contain early graspers and late bloomers. Teacher may arrange an activity so that the concept can reach out all the children with their even participation. If the activity involves the whole class, whether an experiment or a discussion, then the assessment would not involve a sequential look at one child after the other. Hence the teacher will be able to assess without making the children fearful about being tested. This leads to a much better evaluation.

Students solving Challenging problem in groups: Teacher allocates challenging problems to each group. Each group collectively tries to solve with equal participation from each member. Free from



fear, learners can report their own progress, express their doubts and problems, ask questions to give the teacher evidence of their learning or not-learning. They can, to an extent, assess their own learning as well as each other's learning and even help each other learn better. When students are facing difficulties, additional help can be extended by the teacher. Learners who are at a faster pace can be a good resource to help the children who need help.

Presentation to the class: Problems or Activities done by the group is then presented to the whole class. A representative from each group comes forward to present their solution to the class. The student clearly explains the work of their group using the black board. This continues with all the groups. Discussions are welcomed while the student presents the solution. The representative from each group should be changed each time and every member should be given chance to present their group work. All the groups are allowed to present their solutions and the children should be instructed to note the solutions in their note books then by then.

Reinforcement

Teacher after carefully observing the group behavior should note down the concepts which were slightly tough to the students. Teacher should collect other resources to further enhance the understanding of the concept lagging behind. Teacher uses varied teaching resources in reinforcing the concepts.

Evaluation

Teacher must ask brainstorming questions to check the understanding of the students. Teacher should use the evaluation part to assess her teaching method. If the students do not benefit with the learning process, teacher should make change in the teaching methodology. This continuous assessment helps the teacher to reduce the threat of the students moving into further concepts without a clear understanding of the basic concepts.

Remedial Teaching

With the help of the evaluation part and the observation during the group work teacher should identify the students who require further more assistance in understanding the concept. After identifying the students, teacher must devise strategies to help out the students. Teacher should give special attention and additional care to those students who need help in understanding the concepts.

Follow up

Teacher carefully selects activities or problems related to the topic discussed and instructs the students to solve it as homework. Teacher should give hints to solve the problems if needed and instruct to complete other similar problems in the exercise under discussion.

Thus, TIGER method allows the students to explore mathematics and create their own solutions to the problems and have a better understanding and everlasting knowledge of concepts. They get motivated to learn more and do more. More over TIGER method can be administrated in any circumstance and without expensive gadgets which are not affordable to most rural areas.

SIGNIFICANCE OF THE STUDY

In the present scenario many teachers follow traditional way of teaching mathematics. In contrary to the traditional method, Tiger method follows the recommendations of group work and individual work in solving mathematical problems and it also helps the students to gain self confidence in their mathematical abilities and provides them a practical knowledge and better understanding of mathematical concepts.



It is only the teachers who can bring about a change as they are the source to reach students. Moreover, teachers of mathematics have a responsibility in overcoming the fears about new innovative method and to assist the children in developing better understanding in mathematics. Hence the present study is conducted to find out the effectiveness of TIGER method on interest in mathematics of students.

OBJECTIVES OF THE STUDY

- 1. To find out whether there is any significant difference between Control and Experimental group at the Pre-interest stage
- 2. To find out whether there is any significant difference between Control and Experimental group at the Post-interest stage
- 3. To find out whether there is any significant difference between Control and Experimental group in the progress in interest scores

HYPOTHESIS

- 1. There is no significant difference between Pre-interest Scores of Control and Experimental group
- 2. There is no significant difference in Preinterest Scores between Control and Experimental Group with regard to Level of Intelligence
- 3. There is no significant difference in Postinterest Scores between Control and Experimental groups
- 4. There is no significant difference in Postinterest Scores between Control and Experimental Groups with regard to Level of Intelligence
- 5. There is no significant difference between Pre-interest and Post-interest Scores of the Control Group

6. There is no significant difference between Pre-interest and Post-interest Scores of Experimental Group

METHODOLOGY

Method adopted for the present study

The investigator adopted "experimental method" to find out the effect of TIGER method on Mathematical Interest. The present study is an experimental study with pretest-posttest Equivalent group design. Interest was treated as dependent variable and TIGER method was treated as independent variable in the study.

Sample

The sample of the study consisted of two large groups, control group and experimental group with 30 participants in each group. The 60 samples were selected after administering Nonverbal Intelligence Test by Atmananda Sharma. All students were from rural area and belonged to the same age group of 14-15 years. The economic background of the students was similar. There were 16 boys and 14 girls in the control group and the experimental group.

Tools used

Researcher developed the TIGER method lesson plans and validated it with subject experts and senior teachers. Tools used for this study, included readily available standardized test. It was identified that two tools were needed for the study, an Intelligence test and a Mathematical Interest Inventory. Non-verbal Intelligence test developed and validated by Atmananda Sharma (2007) is used to check the homogeneity. Researcher used Mathematical Interest Inventory standardized by L.N. Dubey for assessing the interest level of the students.



Statistical techniques used

Statistical techniques serve the fundamental purpose of the description and inferential analysis (Aggarwal,1990). The statistical techniques used in the study are Percentage analysis, mean, standard deviation, t-test for determining the significance of difference between means.

DATA ANALYSIS AND FINDINGS

H₀ 1: There is no significant difference in Preinterest Scores between Control and Experimental Groups

Table 1: Difference in Pre-interest Scoresbetween Control and Experimental Groups

Group	Size	Mean	SD	t value	p value
Control	30	25.13	7.58	0.55	0.587
Experimental	30	25.97	6.06	0.00	

Since the p value is greater than 0.05, the null hypothesis is accepted at 0.05 level of significance. Hence, there is no significant difference between the Pre-interest of control and experimental groups.

H₀ 2: There is no significant difference in Preinterest Scores between Control and Experimental Group with regard to Level of Intelligence

Level of Intelligence	Group	Size	Mean	SD	t value	p value
Low	Control	8	20.63	5.98	0.273	0.793
Low	Experimental	8	21.50	8.35	0.273	
Average	Control	11	25.09	6.89	1 314	0.218
	Experimental	11	28.18	3.28	1.514	
High	Control	11	28.45	8.12	0.575	0.578
	Experimental		27.00	4.94	0.375	0.578

Table 2 : Difference in Pre- interest scoresbetween Control and Experimental group withregard to Level of Intelligence

From the table, since the p value is greater than 0.05, the null hypothesis is accepted at 0.05 level of significance. No significant difference was observed in the pre-interest scores between the control and experimental groups with regard to level of intelligence.

 H_0 3: There is no significant difference in Postinterest Scores between Control and Experimental groups

Table 3: Difference in Post-interest Scoresbetween Control and Experimental Groups

Group	Size	Mean	SD	t value	p value
Control	30	26.87	7.57	2 16	0.004*
Experimental	30	32.13	5.87	5.10	

* Significant at 5% level

* Significant at 5% level

Since the p value is less than 0.05, the null hypothesis is rejected at 0.05 level of significance. Hence, there is significant difference between the Post-interest of control and experimental groups.



H₀ 4: There is no significant difference in Postinterest Scores between Control and Experimental Groups with regard to Level of Intelligence

Table 4

Difference in post-interest scores between Control and Experimental group

with regard to Level of Intelligence

Level of Intelligence	Group	Size	Mean	SD	t value	p value
Low	Control	8	25.13	5.94	2 1 1 4	0.072
	Experimental	8	30.38	7.25	2.114	
Average	Control	11	25.73	8.08	1 09/	0.075
	Experimental	11	31.91	6.86	1.964	
High	Control	11	29.27	8.13	1 462	0.174
	Experimental	11	22.64	3.33	1.405	0.174

The p value is greater than 0.05 with regard to low, average and high level of intelligence. Hence the null hypothesis is accepted at 0.05 level of significance. There is no significant difference between the post interest of control and experimental groups with regard to level of intelligence.

 H_0 5: There is no significant difference between Pre-interest and Post-interest scores of the Control Group

Table 5: Difference between Pre-interest andPost-interest scores of Control group

Type of test	Size	Mean	SD	r value	t value	p value
Pre-interest	30	25.13	7.58	0.555	1 33	0.194
Post-interest	30	26.87	7.57	0.000	1.55	

From the table, since the p value is greater than 0.05, the null hypothesis is accepted at 0.05 level of significance. No significant difference was observed in the pre-interest and post-interest scores of control group.

H₀ 6: There is no significant difference between Pre-interest and Post-interest Scores of Experimental Group

Table 6: Difference between Pre-interest andPost-interest scores of Experimental group

Type of test	Size	Mean	SD	r value	t value	p value
Pre-interest	30	25.97	6.06	0.405	5.19	0.000*
Post-interest	30	32.13	5.87	0.405		
0::64						

* Significant at 5% level

It is inferred from the above table that the p value is less than 0.05. Hence the null hypothesis is rejected at 0.05 level of significance. It shows that there is significant difference between pre-interest and post-interest Scores of experimental group.

DISCUSSION

There was no significant difference between the control and experimental groups in the pre-interest test. This implies that there was no difference in the interest levels of two groups prior to the treatment. Both the groups had same level of interest in mathematics. In the post-interest analyses, a significant difference was found between the control and experimental group. It is evident from the data that the experimental group had a higher interest level than the control group in the postinterest test. This shows that the TIGER method has kindled mathematical interest in the students.

The analyses of pre-interest and post-interest tests of control group showed no significant difference whereas the experimental group exhibited an



improvement of scores in the post-interest test. This shows that TIGER method enhanced the mathematical interest in students. The data reveals that even though conventional method does not produce significant interest in the control group with respect to the low and high level of intelligence, teaching with TIGER method produced it in the experimental group with a better interest than the control group. This shows that TIGER method was effective in enhancing interest with regard to low and high level of intelligence.

REFERENCE

- 1. Aggarwal, Y.P. (1990), Statistical methods: Concept application and computation. New Delhi: Sterling publishers Pvt. Ltd.
- 2. Best John, W. (1959), Research in Education, Prentice Hall, INC., Englewood Cliffs, New Jersey
- **3.** Pilli, Olga, Aksu, Meral (2013), The Effects of Computer-Assisted Instruction on the Achievement, Attitudes and Retention of Fourth Grade Mathematics Students in North Cyprus, Computers & Education, 62(3), 62-71
- 4. De Witte, Haelermans, Rogge (2015), The Effectiveness of a Computer-Assisted Math Learning Program, *Journal of Computer Assisted Learning*, 31(4), 314-329
- 5. https://moremathsmore.blogspot.com/2013/11/ tiger-methodology-in-mathematics.html