

# Toy Pedagogy: A Paradigm Shift in Modern Education

Abhijeet<sup>1</sup>, Dr. Samala S. Masih<sup>2</sup>

<sup>1</sup>Scholar, Allahabad School of Education, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh

<sup>2</sup>Associate Professor, Allahabad School of Education, Sam Higginbottom University Of Agriculture, Technology And Sciences, Prayagraj, Uttar Pradesh

## ABSTRACT

Teaching techniques are the vehicles of the learning process. The main objective of the study is to find out the effectiveness of using Toy Pedagogy for teaching mathematics at Senior Secondary level. The investigator used experimental research methodology to conduct the study. The population of the study includes all the students studying at the senior secondary level in Prayagraj district. The sample students of the study was selected by purposive sampling method. Only the students of Non-medical stream were selected. Annual examination result of class X was taken as the basis and the investigator tried to include students having almost same achievement level to maintain homogeneity. 80 students of class XI sciences were divided into two sections. To conduct the experiment, pre-test and post-test design was considered as the most appropriate design.

A pre-test followed by post-test was prepared for evaluating the achievement of students after providing treatment through Toy Pedagogy. In preparing the tests the same chapter vector was considered from text book. The achievement scores of the pre-test and post-tests obtained by two different groups undergoing teaching with and without Toy Pedagogy was administered and was used to compare the effectiveness of Toy Pedagogy over the traditional method. Analysis and interpretation of the data reveals that among these two methods, teaching with Toy Pedagogy was more effective method. The effect of teaching on different groups of students by these two different methods were found to be significant but teaching by toy pedagogy was more effective than the traditional method. A positive view of teachers regarding the use of toy pedagogy in mathematics teaching is essential which can make teaching learning process very effective. Innovative views and ideas can enhance mathematics education in future course of action at secondary level.

**Keywords:** Toy Pedagogy, Senior Secondary

## 1. INTRODUCTION

The National Education Policy (NEP) 2020 has placed a strong emphasis on implementing significant reforms in India's educational system to better address the cognitive and social needs of today's learners. Making sure that students are enthusiastically and actively involved in the learning process is the overarching goal of the pedagogy and curricular modifications. If learning is made more fun, children's abilities can be developed more effectively.

Toy Based Pedagogy is a teaching-learning approach which is based on learning 'through toys and games.'

The idea of incorporating games and toys into the learning process primarily focuses on maintaining games and toys at the center of the curriculum. This aids in the further elucidation and simplicity of novel ideas. It assists in bridging the knowledge gap between theoretical and practical aspects of schooling. It facilitates the process of problem-solving, investigation, imagination, application of knowledge, creation, analysis, improvement, verification, and presentation of the student's work. The student gains a comprehensive understanding of the subject through this experience connected to theory.

A child's mental, physical, social, and emotional development can all be improved by toys. They possess the power to ignite and expand a child's mind. In order to encourage the integration of toys and their pedagogy into the curricula of School Education, Early Childhood Care and Education, and Teacher Education, the concept of Toy-Based Pedagogy was developed. By default, toy-based pedagogy is intended to support an interdisciplinary and multidisciplinary approach to education. As is common knowledge, a multidisciplinary approach looks at a problem from several angles without actively attempting to combine disciplinary viewpoints in a systematic manner.

As a facilitator, the teacher might assist the children in creating new toys to pique their attention in class. Since the classroom is designing the toys, they will have a bigger influence on the teaching and learning process and be more pertinent to the discussion topic. Students learn a subject better and are also able to relate it more readily when they make their own toys. It also aids in developing their creative abilities.

Children must be given the chance to actively affect their surroundings both mentally and physically, to learn through meaningful techniques, to become aware of and solve their own difficulties, if they are to construct knowledge as opposed to passively receiving it (Althouse, 1994). Althouse concurs with Baroody and Coslick (1998), who opine that the fundamental act of teaching mathematics involves converting mathematical concepts into a language that young learners can understand. Teaching arithmetic involves giving kids experiences that help them make connections and create meaning.

A sizable portion of pupils struggle to master maths. The study of mathematics is unique, and symbols play a significant part in it. Because of the nature of mathematics, learning is challenging for students. The choice of major and the likelihood that a student would graduate and be eligible for fulfilling employment are significantly influenced by their performance in mathematics courses.

Studies have shown that the majority of students view mathematics as a challenging topic with no application to real-world situations (Countryman, 1992; Sobel & Maletsky, 1999; Van de Walle, 2001). This impression starts to take shape in primary school, as pupils discover that the topic is highly abstract and strongly dependent on algorithms. Up to middle school, high school, and college, this pattern persists. Students lose interest in mathematics by the time they reach high school, and they are unable to describe some procedures (Countryman, 1992). Many pupils find that the methods and norms for math in the classroom are confusing or nonsensical, according to Countryman (1992). They take tests, complete assignments, adhere to guidelines, and memorize examples, but they are unable to explain their responses. There will be two groups of people in the twenty-first century: those who are mathematically abled and those who are mathematically disabled or disadvantaged. The former gives commands to the latter. Technically skilled labor is needed in our nation, and mathematics is crucial to achieving this goal.

**1.1 Senior secondary school:** Secondary Schools are meant for providing education covering up to XI and XII standards.

**1.2 Toy Pedagogy:** Toy Pedagogy is a teaching - learning approach in which concepts and skills are learnt

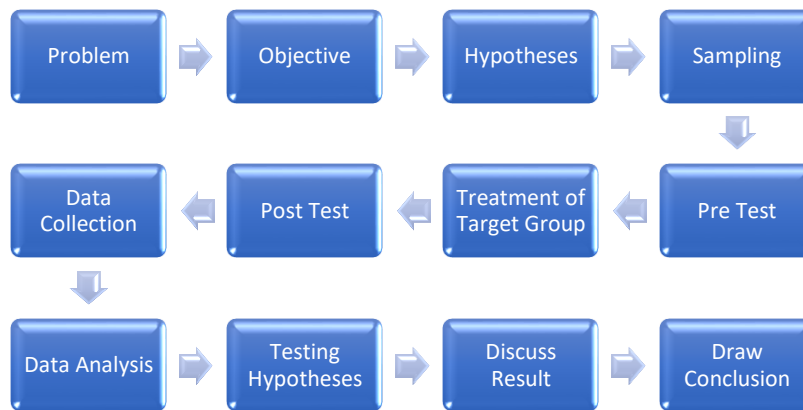
in joyful manner using toys, games, puppets etc. This course focuses on enabling the learner to learn and practice the use of toys in teaching-learning of his/her subject/s.

## 2. OBJECTIVES OF THE STUDY

The present study has the following main objectives. It has been given in the succeeding lines:

- A. To find out Effectiveness of teaching mathematics at Senior Secondary level
  - Without using Toy pedagogy
  - Using Toy pedagogy
- B. To compare the academic achievement of students taught through Toy pedagogy and without Toy pedagogy.

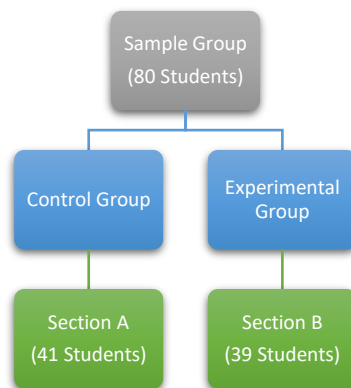
## 3. METHODOLOGY OF PRESENT STUDY



**4.1 Variables:-**In the present study Academic Achievement of the Students (scores) are dependent variables and teaching using teaching aids and without teaching aids are independent variables.

**4.2 Population:** The population of this study includes all the mathematics students at Senior Secondary level in Prayagraj.

**4.3 Total Sample:** A total number of 80 students of class XI were selected as sample for the present study.



## 4.4 Tools of the study:

1. Pre- test for testing previous knowledge of the students.

2. Post-test for determining the academic achievement score.

#### 4. ANALYSIS

A pre-test followed by post-test was prepared for evaluating the achievement of students after providing them treatment through Toy Pedagogy. In preparing the tests the same chapter vector was considered from text book. The achievement scores of the pre-test and post-tests obtained by two different groups undergoing teaching with and without Toy Pedagogy was administered using statistical analysis and was used to compare the effectiveness of Toy Pedagogy over the traditional method. Analysis and interpretation of the data reveals that among these two methods, teaching with Toy Pedagogy was more effective method. The effect of teaching on different groups of students by these two different methods were found to be significant but the modern method of teaching with aids was more effective than the traditional method.

#### 5. FINDINGS OF THE STUDY ON THE BASIS OF EXPERIMENTATION

1. This study reveals that there is significance difference between average scores of post-test, when teachings was conducted using Toy Pedagogy in place of traditional method. Thus this study shows that use of Toy Pedagogy has significant impact on teaching mathematics.
2. From this study it is also observed that both the traditional and Toy Pedagogy methods are effective in teaching mathematics, although the maximum effect is observed in case of using Toy Pedagogy.
3. This study shows significant difference in the mean score when Toy Pedagogy was used for teaching.
4. Teaching methods can be turned into very effective teaching methods only by using the right combination of teaching technique and skills.
5. A key element of a successful approach is the teacher's enthusiasm. Students are likely to pick up on a teacher's lack of enthusiasm for the material or class if the teacher lacks enthusiasm for it themselves. Students are more likely to be motivated by teachers who are enthusiastic about what they do and who enjoy teaching.
6. An essential component of successful direct education is lesson sequencing. Slower pacing is necessary for more complex material to give pupils more time to grasp it. Encouraging pupils to participate appropriately is another crucial element in helping them understand the material.

#### 7. CONCLUSION

We may conclude that using toy pedagogy is a very effective approach to educate. It's also crucial to shift teachers' mindsets since they favor traditional ways, which may be because they don't care for current methods or because there aren't enough resources available. In order to concentrate constructivism in our classrooms, it is imperative that we place a strong emphasis on method and create suitable strategies for teaching mathematics in senior secondary schools.

1. This study found that teachers who use toy pedagogy can communicate mathematical concepts more simply.
2. It was also discovered that the instructor might motivate the pupils to ask questions and get their doubts answered.
3. According to this study, the teacher is happy with the way the children have learned after utilizing toys in the classroom. Assessing pupils' ability to solve problems in novel or unfamiliar situations is beneficial.

4. According to this study, most teachers favour using a variety of resources while instructing students.
5. It has been noted that when employing toy pedagogy in the teaching-learning process, teachers typically encouraged students to have discussions.
6. It demonstrates that the instructor has reviewed the material and examined the students' progress as indicated by their entering, transitional, and terminal behaviours.

The doors to effective teaching are the instructional approaches. For all learner types, the proper application of toy pedagogy in mathematics instruction is a crucial strategy. When used effectively, toy pedagogy can improve the teaching-learning process. Additionally, NCERT and NEP-2020 endorse this viewpoint. The Kothari Commission (1964–1966) asserted that training institutions' methods of instruction and assessment are crucial. It facilitates the student instructors' ability to distinguish between what they have already taught and what they should teach following their in-class instruction. With the goal of teaching mathematics in mind, toys should be adaptable to the needs and skills of the kids as well as the unique demands of the environment. It can be suggested that, more resourceful and indigenous toys can be used in teaching Mathematics through Toy Pedagogy for the benefit of the senior secondary school students.

## REFERENCES

1. Ali, Azar; Sengulec, A. Ozlem (2011): Eurasian Journal of Physic & Chemistry Education. 2011, Vol. 3 Issue 1, p-43-50. Computer-Assisted and Laboratory-Assisted Teaching Methods in Physics Teaching : The Effect on Student Physics Achievement and Attitude towards Physics.
2. Back, L.B, Bretz, S.L. and Towns, M.H. (2008): Characterizing the level of
3. Inquiry in the undergraduate laboratory - Journal of College Mathematics Teaching XXXVIII (1) 52-58.
4. Back,L.B.,Bretz,S.L.,and Towns,M.H.(2008): Characterizing the level of Inquiry in the undergraduate Laboratory-Journal of College Mathematics Teaching XXXVIII(1),52-58.
5. Bhuyan, S. (2004): General Mathematics Curriculum and its teaching in the Secondary Schools of Assam. An appraisal unpublished Ph.D. Thesis, D.U.2004.
6. CBSE: Wikipedia,en.wikipedia.org/wiki/central\_board\_secondary\_education (access on 17.07.2016).
7. Vijayakumari. (2010). Some correlates of Academic Achievement of Secondary School Students. Edutracks
8. Vitti, D., & Torres, A. (2006). Practicing Science Process Skills at home. Retrieved from <https://secure.nsta.org>.
9. Shivakumar, P., & Bhaskar, K. (2009). Science Learning, Edutrack,
10. Shulman, L. S., & Tamir, P. (2004). Research in teaching in the National Science. Second handbook of Research on teaching: (rd) Rober, M.W.T. Rawera, Chigaco: Rand McNally College Publishing Company.
11. Singaravelu, S. (2009). Test Anxiety and Academic Achievement in Mathematics of High School Students. Journal of Community guidance and research
12. Smith, T., & Krista, P. (2002). The Effects of Online Time Management Practices on self-regulated learning and Academic Self-efficacy (Doctoral dissertation, Virginia Polytechnic Institute and State University, 2002)
13. National Council of Teachers of mathematics Commission. (1989). Standards for school

mathematics: Curriculum and evaluation standards for school mathematics. Retrieved from <http://www.standards.nctm.org>

14. National Curriculum Frame Work (NCF). (2005). New Delhi: Publication Division, NCERT.
15. National Policy on Education. (1986). University Grants Commission. India. Retrieved from [www.ugc.ac.in/policy/national.html](http://www.ugc.ac.in/policy/national.html).
16. NCERT. (2005). National Curriculum Framework-2005. Retrieved from [www.ncert.nic.in/nf](http://www.ncert.nic.in/nf) NCERT. (2005).
17. National Policy on Education-1986. Retrieved from [www.ncert.nic.in/npe86](http://www.ncert.nic.in/npe86) National Science Teachers Association (1971). School science education for the 1980s. Science technology- society.
18. Search Engine: [www.google.com](http://www.google.com) , [www.wikipedia.org](http://www.wikipedia.org)., [www.sgsubjects.inflibet.ac.in](http://www.sgsubjects.inflibet.ac.in)