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## **A Review Study on The Practice of Enhancing Motivation of Students in Learning Mathematics**

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### **Abstract**

*Students' involvement and success in mathematics are greatly influenced by their motivation. Students that are motivated are more likely to actively participate in the learning process by contributing to class discussions, posing inquiries, and looking for answers to issues. This study is based on the review of articles and journals related to the practice of enhancing motivation of students in learning mathematics. The study finds efficient tactics, interventions, and methods that have been used to boost motivation in mathematics instruction by reviewing the body of existing literature on the subject. The review study's findings give educators, researchers, and decision-makers important information about how to create and carry out interventions that boost students' motivation and enhance their mathematics learning outcomes.*

**Keywords:** motivation, enhancing, learning, achievement

### **Introduction**

The society has evolved and this also included the education to evolve together. Traditional methodologies to teach the students no longer generate a motivation to learn but rather boredom and demotivation. Hence new and better strategies are necessary to carry out the teaching-learning process. Learning achievement largely depends on the

interest of students to the subject matter. We are not finding our high school mathematics students showing the interest to learn mathematics in the classroom. Every year many students are failed to achieve the minimum score grades in national level examination of grade X and XII. Motivation towards the mathematics plays the important role to create the readiness for learning.

Being successful in many different disciplines requires a solid background in mathematics (Estapa & Nadolny, 2015). But a lot of children find math to be a difficult and challenging subject. This might cause a loss of interest and low desire for learning math. The body of knowledge regarding the elements that affect students' motivation in mathematics is expanding. According to research, teachers can use a variety of steps to increase math students' motivation.

Bobis, J. & et, al.(2011) have described motivation as a fuel for learning mathematics. Students' involvement and success in mathematics are greatly influenced by their motivation. Students that are motivated are more likely to actively participate in the learning process by contributing to class discussions, posing inquiries, and looking for answers to issues. According to Bobis, J. & et, al.(2011), If students do not grasp what motivation and engagement actually mean in the context of school and do not have concrete tools for achieving them, requests from instructors or parents to study more or participate more in class activities may be useless. They exhibit a sincere desire to comprehend mathematical ideas and are prepared to put in the necessary time and effort to learn. In the context of learning mathematics, this review study intends to investigate the many strategies employed to increase student motivation.

### **Purpose of the study**

Through this paper I would like to explore the relationship between motivation and mathematics learning achievement. Similarly, strategies which can motivate students to learn mathematics are also the objectives of this review paper.

### **Methodology**

In identifying sources for this literature review, multiple databases were used. Initially, Google Scholar was utilized to take an initial sample of what type of articles were available. Regarding Google Scholar, broad search terms were initially used to establish a list of research articles that were primary source and peer review. In the beginning, I used a basic search of 'impact of motivation in learning'. From the articles titles and research data derived from Google scholar with the search basis, I was able to use a better list of more refined terms when utilizing other data bases. Additionally, I took the help from the

databases of library genesis and science hub. Moreover, through the remote access of central library, Tribhuvan University, I used the database of Proquest to search the articles. To create the most specifically defined and pertinent articles, these terms were merged in numerous ways using varied combinations. The majority of these phrases were created as a result of the first Google Scholar search and the information returned by database searches. In addition to database searches, the snowball method was used to locate a number of articles. Due to their relevance and suitability in light of the goal of this literature evaluation, each of the search phrases utilized was chosen.

### **Ways to motivate students**

Despite the fact that mathematics is connected to a wide range of other courses and everyday practical issues, students do not perceive a direct connection between the two things and do not demonstrate an interest in learning it. They consider it to be extremely difficult and just something that should be engaged with when solving problems in writing with a pen or pencil, not in any other way (Estapa & Nadolny, 2015). As a result, interest levels are gradually declining. This paper tries to explore the different components which can enhance the student's motivation to learn mathematics more actively and effectively.

According to Hein, V. (2012), one of the primary factors shaping students' motivation and learning is teacher behavior. Teachers are essential in developing an enjoyable and productive learning environment, and their actions can have a big effect on students' attitudes, motivation, and academic success. Trust, respect, and a sense of belonging are fostered by teachers and students having helpful and cooperative interactions. Students are more likely to be motivated and involved in the learning process when they perceive that their teachers value and care about them. Different learning styles and preferences can be accommodated by teachers who employ a variety of efficient instructional strategies and techniques (Hein, V., 2012). Teachers can pique students' attention and encourage active engagement in the classroom by utilizing engaging and interactive teaching strategies like discussions, group projects, hands-on activities, and multimedia tools.

Students' self-perception and performance can be significantly impacted by teachers' expectations. Teachers who have high expectations for their students but also often give them feedback on how they are doing can inspire pupils to work hard in class and boost their self-confidence (Nepal, B., 2016). Effective classroom management calls for the establishment of unambiguous guidelines, procedures, and standards. Students can concentrate on their study without interruptions when teachers establish an organized

and tidy environment because it fosters a sense of safety and security. A supportive learning environment is facilitated by teachers who offer encouragement, acknowledge students' achievements, and provide assistance when required. Teachers can increase their pupils' motivation and self-esteem by praising and celebrating their accomplishments.

Effective teachers customize instruction and differentiate their curriculum to fit individual needs, taking into account the varying backgrounds, interests, and talents of their pupils. By making sure that the material is pertinent, difficult, and important to each student, this method encourages student participation (Githua, 2003). Academically and socially, teachers function as role models for their students. Teachers inspire and motivate students to adopt similar attitudes and actions when they exhibit a growth mindset, curiosity, and excitement for learning.

By highlighting how mathematics is actually used in a variety of industries, including finance, engineering, technology, and daily life, we may raise interest. According to Johnson (Maryati, 2017), contextual learning is a method of teaching that aims to provide students a better understanding of the content they are studying by connecting it to real-world situations. Further authors have suggested eight key CTL principles of contextualizing and they are: having meaningful relationships, working on meaningful work, organizing our learning way, working together, thinking critically and creatively, nurturing/caring for Students' personal, achieving high standards, and using authentic assessment. This is done in the context of personal, social, and cultural environments. Contextual Teaching and Learning (CTL) is a method of instruction that links classroom learning to students' everyday experiences. The instructor acts as a facilitator to assist students in making these connections.

In Kenya, a study was carried out to determine the relationship between students' mathematics self-concept (MSC) and their motivation to learn the subject (SMOT). The study's findings indicate that gender, grade level, and the social climate of the school all affect kids' MSC, and that boys perceive their achievement in arithmetic in a more favorable light than girls do (Githua, B. N., & Mwangi, J. G. (2003)). That paper advises teachers to increase students' MSC and SMOT by consistent feedback, the use of a range of instructional strategies and media, piquing students' interest in mathematics, making it relevant, and raising the likelihood that students will succeed and be satisfied.

Through interactive technology-based tools, group projects, and hands-on activities students can be engaged (Star et al., 2014). To make mathematics more enjoyable and engaging, experimentation, problem solving and exploration is to be promoted. Students can better perceive and comprehend mathematical concepts by using

material objects such as blocks, counters, or geometric forms. For instance, demonstrating addition with blocks or exploring fractions using fraction bars. Classes can be made more effective by incorporating math games and puzzles that demand students to use mathematical knowledge and techniques. Math learning can be made interesting and participatory by playing games like Sudoku, Tangrams, or math-themed board games.

Teachers must better understand these aspects and how they relate to efficient teaching methods because both motivation and achievement are prone to decline in the important middle grades. (Bobis, J., Anderson, J., Martin, A., & Way, J., 2011). The development of customized interventions to boost individual students' motivation as well as whole-class mathematics instruction can be guided by the Motivation and Engagement Wheel. Through four examples—various teaching tactics, real and pertinent tasks, open-ended questions, and using errors as a focus for learning—we have also offered potential possibilities for whole-class instructional approaches and specific intervention strategies.

### **Motivation and learning outcomes**

According to Nepal, (2016), the score on the math accomplishment exam was positively connected with each individual facet of mathematical thinking and positive views on mathematics. The total amount of mathematical thinking was substantially associated with each of its component parts. Induction showed the lowest association with the test of mathematical thinking, whereas the problem solving subscale had the best correlation. Mathematical Proof was found to have a strong link with mathematical achievement, but deduction and the test of mathematical achievement had the weakest correlation. In conclusion, Mathematical Thinking and motivation towards mathematics are related to Mathematical Achievement.

Students are more likely to participate actively in the topic, persevere through difficulties, and attain higher levels of understanding and proficiency when they are driven to learn mathematics (Bishara, 2016). Students that are motivated will put up the time and effort necessary to learn mathematics. They are more inclined to face difficult situations with an optimistic outlook and the conviction that they can get beyond challenges. This tenacity allows children to explore various problem-solving techniques, delve deeper into mathematical ideas, and ultimately develop a greater comprehension of the subject.

Mathematics activity is driven by motivation. Students that are motivated are more likely to participate actively in class discussions, ask questions, and look for clarification. They actively participate in their education, which enables them to explore ideas, make connections between concepts, and gain a greater comprehension of

mathematical concepts. Students are more likely to concentrate and pay attention during mathematics sessions when they are motivated (Kim & Merriam, 2004). They are more willing to focus on the current mathematical activities and are less likely to be sidetracked by outside influences. They can take in new knowledge, follow logical reasoning, and draw significant connections in mathematics because to their laser-like focus.

Motivated students frequently find mathematics to be interesting and enjoyable (Hein, 2012). They enjoy working out mathematical puzzles, looking for patterns, and finding novel mathematical connections. This innate interest in mathematics encourages a favorable attitude toward the subject and a desire to continue learning and exploring it. Students' ability to solve mathematical problems is improved by motivation. Students that are motivated are more inclined to approach challenges with optimism and the conviction that they can discover solutions. They are prepared to use a variety of tactics, exercise creativity, and persevere in challenging problem-solving situations. Their capacity for critical thinking, analytical reasoning, and mathematical problem-solving is developed by this motivation-driven approach to problem-solving.

The ability to retain and apply mathematical knowledge depends on motivation. Students are more likely to encode and retain mathematical concepts in their long-term memory when they are eager to study (Estapa & Nadolny, 2015). Motivated students can also apply their knowledge to fresh contexts and solve issues in the real world using math, which helps to solidify their comprehension and gives math a deeper meaning. Math confidence is cultivated by motivation. Students' self-esteem and confidence in their abilities are boosted when they are motivated and have success in their mathematical study. This self-assurance in turn motivates individuals to take on more difficult activities, think critically, and work through tricky mathematical ideas.

## **Conclusion**

The study finds efficient tactics, interventions, and methods that have been used to boost motivation in mathematics instruction by reviewing the body of existing literature on the subject. The review study's findings give educators, researchers, and decision-makers important information about how to create and carry out interventions that boost students' motivation and enhance their mathematics learning outcomes. Several elements, including instructor behavior, instructional approaches, and the learning environment, might have an impact on motivation. The intrinsic motivation of pupils is fostered and their learning of mathematics is enhanced when teachers foster a friendly and motivating classroom atmosphere.

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