

# **Awareness On Realistic Mathematics Situations Among Secondary School Students**

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## **Abstract**

The bundle of knowledge and practice known as mathematics is developed through the contributions of thinkers throughout ages and across the globe. Mathematics help us to understand the world and we use the world as an example to demonstrate mathematical concepts. The new normal educational system focusses on the development of mathematization of thought process in individuals to set them of global competence. There is increasing evidence that an awareness about the realistic mathematics situations in daily life is crucial to develop mathematical competence among young children. The realistic mathematics approach indicates a life integrated learning approach which involves students learning through daily life situation with increased student control over learning. They gain knowledge and opportunity to apply it in a realistic situation and also makes them confident to tackle even a more complex future situation. The present study is an effort to understand the awareness of secondary school students about the realistic element of mathematical concepts they already acquired. Using the scale of Awareness on Realistic Mathematics Situations data collected from 1500 secondary school students of Ottapalam subdistrict. The tool includes items in three dimensions knowledge, understanding and application. Results show that the level of awareness of realistic mathematical concepts is below average which demands our classroom activities to be more realistic especially daily life oriented. The study revealed that gender have impact on awareness of realistic mathematical situations while medium of instruction have no influence in developing awareness on realistic mathematics situations and thereby need special attention in providing atmosphere and encouragement to female students in handling realistic mathematical situations. We have to furnish up to the minute meaningful experiences while introducing mathematical concepts which will make our learner fit for future.

**Key words:** Realistic Mathematics Situations, Secondary School Students

## **INTRODUCTION**

In the present era, learning involves more than just collecting knowledge, which is readily available on internet. “The key overall thrust of curriculum and pedagogy reforms across all stages is to move the education system towards real understanding and learning how to learn- and away from the culture of rote learning present today. The goal is to create holistic and complete individuals equipped with key 21<sup>st</sup> century skills.” (NEP 2020). The bundle of knowledge and practice known as mathematics is developed through the contributions of thinkers throughout ages and across the globe. Learning mathematics aims the development of a quality human resources in terms of spirituality intelligence and skill

who are able to use mathematics and mathematical thinking in daily life. According to Algani (2022) Learning mathematics equips our thoughts with a multitude of incredibly useful effects which help us to think efficiently in everyday life.

## **REALISTIC MATHEMATICS**

Realistic mathematics education is the most important approach in mathematics learning originated in Netherlands which considers mathematics as a human activity and it must be connected to reality. Historically the concept is related to Van Hiele's levels of learning mathematics. According to Van Hiele (cited in De Lange, 1996) the process of learning proceeds through three levels (1) a pupil reaches the first level of thinking as soon as he/she can manipulate the known characteristics of a pattern that is familiar; (2) as soon as he/she learns to manipulate the interrelatedness of the characteristics he/she will have reached the second level; (3) he/she will reach the third level of thinking when he/she starts manipulating the intrinsic characteristics of relations. Traditional instruction is inclined at the second or third level while realistic approach starts from first level. There is increasing evidence that the awareness about realistic mathematics situations in daily life is crucial to develop mathematical competency among young children. Realistic mathematics approach give chance to rediscover mathematical concepts with adult guidance through variety of real-world problems. Mathematics is synonym with problem solving. Many of us are dealing situations without knowing the mathematical fact behind it, if we are able to mathematize our thoughts learning will be simplified. Jesi et al. (2021) found mathematics learning through RME approach makes mathematics more life oriented and can improve student mathematical abilities in various aspects. Lestari & Surya (2017) Realistic mathematics education approach ensures individual mastery and classical mastery in learning mathematical concepts.

Ulandari et al. (2019) observes the main purpose of teaching mathematics as students to solve problems in their daily life. The use of real-life situations as learning activities will make mathematics learning more meaningful and successful.

## **NEED OF THE STUDY**

Even though mathematics is a very important subject in formal education and closely related to human life it is not a subject of interest to major part of the student community. Realistic mathematics situations help students to understand mathematics and know how to realize it in daily life. Neza et al. (2020) RME model can improve the concept of understanding creativity and character development of students with increased retention. It improves mathematical literacy. The main characteristics of realistic mathematics education approach is the use of real-life contexts to bridge between abstract and real situations, developing students' own strategy as a result of their doing mathematics, interaction between student and surroundings, connection to meaningful real-life situations. Juandi et al (2022) in the study which analysed the RME approach of last two decades found that implementing RME has a significant favourable influence on people's mathematical abilities. Instead of giving unused heavy works this includes simple day to day life related situations to the learner to master the mathematical concepts. Trisnawati (2018) found that realistic mathematics education can improve students' mathematical communication and thus learning

become more meaningful. Our educationalists also incorporated RME concepts in our teaching learning process. In this scenario this study aims to analyse the awareness on realistic mathematics situations among secondary school students.

### **OBJECTIVES**

1. To study the awareness on realistic mathematics situations among secondary school students.
2. To study the awareness on realistic mathematics situations among secondary school boy students.
3. To study the awareness on realistic mathematics situations among secondary school girl students.
4. To find whether there exists gender difference on awareness of realistic mathematics situations among secondary school students.

### **HYPOTHESES**

1. There exist different levels in awareness on realistic mathematics situations among secondary school students.
2. There exist different levels in awareness on realistic mathematics situations among secondary school boy students.
3. There exist different levels in awareness on realistic mathematics situations among secondary school girl students.
4. There exists no significant difference in the level of awareness on realistic mathematics situations among secondary school students classified based on gender.

### **METHOD**

Descriptive Survey method is employed in the present study.

### **SAMPLE**

For the present study, sample of 150 secondary school students is drawn randomly from secondary school students of Kerala State Syllabus studying at Government Schools of Ottapalam sub district.

### **TOOL USED**

Awareness test on realistic mathematics situations developed by the investigators is used for data collection.

### **STATISTICAL TECHNIQUES EMPLOYED**

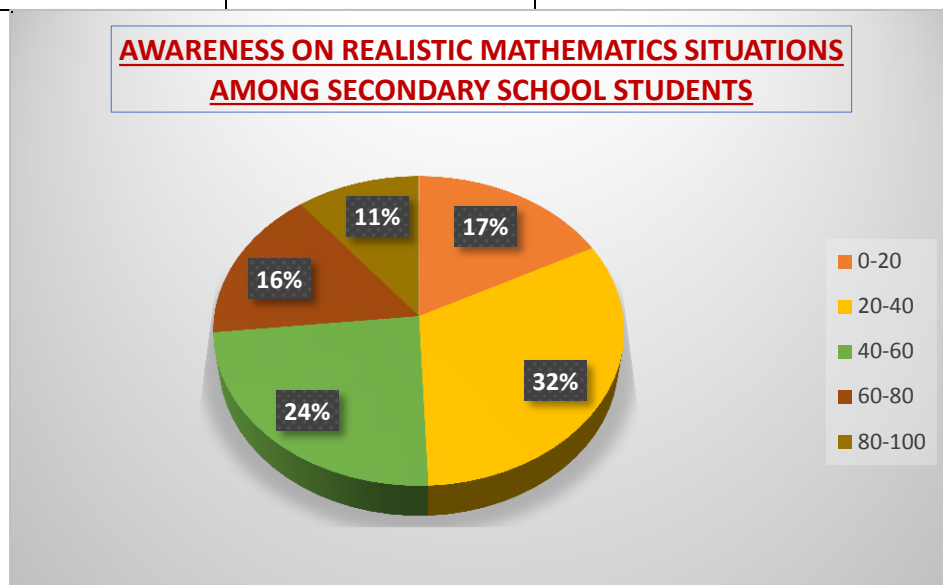
Means, standard deviations, percentages and z ratio are calculated to compare boys and girls on the variable awareness on realistic mathematics situations.

**RESULTS AND INTERPRETATION**

The purpose of this study is to find the level of awareness on realistic mathematics situations among secondary school students and whether any differences exist between boys and girls in the awareness on realistic mathematics situations.

**Table: 1 Classification of Scores of Awareness on Realistic Mathematics Situations for Total Sample of Secondary School Students**

Score	Number of students	Grade
0-20	26	Critical
20-40	48	Below average
40-60	36	Average
60-80	24	Above average
80-100	16	Excellent

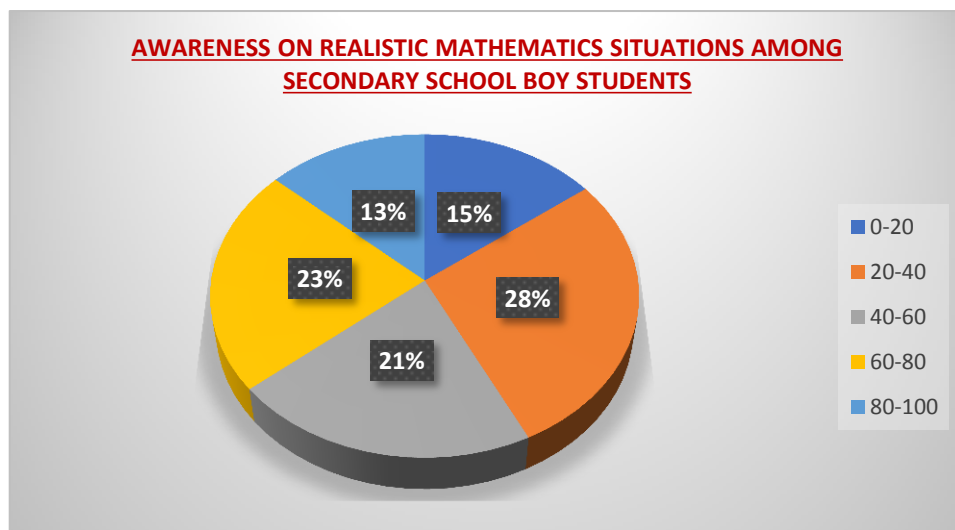


**Figure1: Pie Diagram Showing the Percentage of Secondary School Students fall under each Level of Awareness on Realistic Mathematics Situations**

The distributed score of the total sample on the level of awareness on realistic mathematics situations shows that 32% of the students are under below average class. Only 11% students are under excellent class. Percentage of students in average class is 24, while 49% students are scored below average on testing the awareness on realistic mathematics situations.

**Table: 2 Classification of Scores of Awareness on Realistic Mathematics Situations for Subsample of Secondary School Boy Students**

Score	Number of students	Grade
0-20	11	Critical
20-40	21	Below average
40-60	16	Average
60-80	17	Above average
80-100	10	Excellent



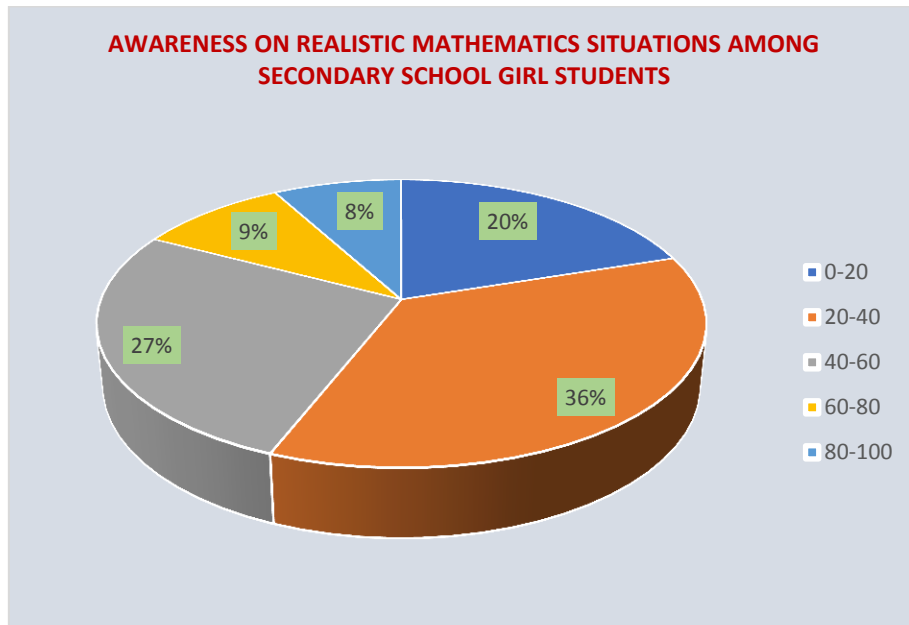
**Figure2: Pie Diagram Showing the Percentage of Secondary School Boy Students fall under each Level of Awareness on Realistic Mathematics Situations**

The distributed score of the subsample of secondary school boy students on the level of awareness on realistic mathematics situations shows that 28% of the students are under below average class. Only 13% students are under excellent class. Percentage of students scored below average is 43, which is less than that of total sample.

**Table: 3 Classification of Scores of Awareness on Realistic Mathematics Situations for Subsample of Secondary School Girl Students**

Score	Number of students	Grade
0-20	15	Critical
20-40	27	Below average
40-60	20	Average

<b>60-80</b>	<b>7</b>	<b>Above average</b>
<b>80-100</b>	<b>6</b>	<b>Excellent</b>



**Figure3: Pie Diagram Showing the Percentage of Secondary School Girl Students fall under each Level of Awareness on Realistic Mathematics Situations**

The distributed score of the subsample of secondary school girl students on the level of awareness on realistic mathematics situations shows that 20% of the students are under below average class. Only 8% students are under excellent class. Percentage of students scored below average is 56, which is far high than that of total sample. Also a low percentage 13of girl students scored above average score

**Table: 4 Comparison of Boys and Girls in terms of Awareness on Realistic Mathematics Situations**

Variable	Number	Mean Score	S.D.	t value	Result
Boy	75	48.4	7.4	6.86	Significant at 0.05 level
Girl	75	39.87	7.8		

Table 4 shows that the difference in mean score of awareness on realistic mathematics situations of boys and girls exhibited is significant. The formulated null hypotheses of the study that there exists no significant difference between boys and girls of secondary school students is rejected in the present sample. As a result, there exists significant difference in the mean score of awareness on realistic mathematics situations among secondary school students classified based on gender.

The findings of the study indicate that the level of awareness on realistic mathematics situations among most secondary school students is below average. On comparing based on gender number of boys scored above average is higher than that of girls. The mean score of boys is greater than that of girls and this difference in mean score is significant at 0.05 level. Hence the awareness on realistic mathematics situations among boys is higher than girls.

## CONCLUSION

Learning mathematics is a persistent issue for students at all grade levels. This phobia towards mathematics and avoidance of the subject can be eliminated by making math appealing through engaging, real-world scenarios. Realistic mathematics education approach is the most satisfactory method to attain this goal. It is not too easy to create realistic situations with in the classroom during class hours all as a sudden. We need rigorous discussions and testing to list effective real-life situations to introduce mathematical concepts. Mathematics is no longer only a subject of study; it is now a thought-processing language. Therefore, every child has a right to and the country ought to have access to high-quality math education. It is very challenging to develop mathematical understanding in a practical way. Even we had incorporated many realistic elements in maths learning our students are still struggling to incorporate maths to life. To attain this, we need more researches on material development which give students opportunity to naturally practice maths in the school as well as out of school. They must be able to connect maths with real life through authentic activities.

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