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A STUDY OF ACHIEVEMENT IN MATHEMATICS OF SECONDARY SCHOOL STUDENTS

RESHAMI KUMARI and Dr. Suchitra Behera

¹Research Scholar Department of Education
Srinath University, Jamshedpur Jharkhand

²Professor Department of Education
Kolhan University, Jharkhand

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ABSTRACT

Mathematics as a subject has been recognized as one of the central strings of human intellectual activity throughout the centuries. Mathematics offers opportunities for Opening the mind to new lines of creative ideas and challenging thoughts. It plays an important role in today's competitive environment. Some students score very low in mathematics while other excels in it. Learning and thinking style in mathematics may lead the student to confront and solve any problem that comes their way.

Achievement may be defined as a change in the behavior of students in a desired direction. It is an essential constituent in the process of evolution. 'Achievement' means one's learning attainments proficiencies, accomplishments etc. As an achievement test is a formal assessment the test helps teachers to understand the level of comprehension of the students and helps them to estimate the capabilities of the students. The main objective of the present study is to find out the difference between social belongingness and gender in the achievement of mathematics in IX class students.

Achievement in mathematics continues to be one of the most important variables held in high esteem, in all cultures, countries, and times. Hence, research related to the mathematics achievement area is an ever-growing concern of researchers, educationists, and administrators.

This study investigates "ACHIEVEMENT IN MATHEMATICS OF SECONDARY SCHOOL STUDENTS". The purpose of the study was to determine the achievement in Mathematics concerning gender and social belongingness.

The study used a descriptive survey method. 245 students were selected from government and private secondary schools of the Serikela Khansawan district affiliated with the Jharkhand Academic Council using a random sampling technique. Self-developed Achievement in Mathematics tool was used for data collection t-value was used to analyze the data.

The result revealed that there is no significant difference between the achievement in Mathematics of secondary school students based on gender and social belongingness.

KEYWORDS: Achievement in mathematics, social belongingness, gender, Secondary School Students

INTRODUCTION

Education is very important for the progress of an individual and society. It is through education that man develops his thinking, reasoning, problem solving ability, intelligence, aptitude, positive statements, good values and attitudes. The aim of education is to make more skilled and lifelong learners. It is possible only if we are capable of doing any task or solving any problem with precision and accuracy. Generally, we do things but we do not bother how we do it or how we can do it more systematically. But the fact is that if we pay attention to our way of thinking, it can help in improving achievement levels.

Mathematics is a science of quantity and space. It deals with the questions and problems involving size, portion, area, time, interval, distance etc. it is also a science of calculations involving the use of numbers. It deals with the numerical part of man's life. In this way, it is a systematic organized and exact Branch of science which deals with abstract concepts. Mathematics is the study of quantity, space, structure and change. It is one of the most abstract concepts that a human mind has encountered. The ability to count, to compute and to use numerical relationships is among the most significant among human achievements. The mathematical material gives the child his own mathematical experience and to arrive at individual work. The impact of mathematics is not merely of science and technology that matters in the modern world, but perhaps much more powerful than is its impact on behavior of individuals. It is based upon reasoning, demonstrated consistency and logic in its process and trains the human mind for simplicity, accuracy, analysis, synthesis and conceptual understanding of the world.

Each student in his day to day life has to achieve certain vital goals and objectives. Mathematics works as a base-camp to achieve these objectives. Every stage of education has its own importance. Secondary education lays the basic foundation for all types of higher education.

Mathematics achievement is an essential part of the academic achievement in the modern era. It is the key to success in many professions.

Review of Related Literature

Verma and Gupta (1990) revealed that VIII class boys belonging to the high environment group achieved significantly greater mean than boys belonging to the low environment group. However no significant differences were found in the case of girls of high, medium and low environment groups

Bhujendranath Panda (1991) observed that 9th and 10th class boys of rural areas and urban girls were better in achievement in mathematics than their counter parts.

Mangal (2008): -Defined that, “An achievement test is essentially a tool or device of measurement that helps in ascertaining the quantity and quality of learning attained in a subject of study or group of subjects after a period of instruction by measuring the present ability of the individual concerned.”

Ozsoy (2011) The study was conducted in order to see the metacognitive knowledge and skills with respect to mathematics achievement. Significant and positive relationship between metacognition and mathematics achievement was found.

Pandey Bhairab Datt (2017) investigate “A STUDY OF MATHEMATICAL ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS”

They conclude that Mathematical Achievement is the competency shown by the student in the subject mathematics. Its measure is the score on an achievement test in mathematics.

The investigator concluded that there is a significant difference between the mathematical achievements of class X students of secondary schools on the basis of their sex and social belongingness, however, it is interesting to know that rural male and urban male students are almost similar in their mathematical achievement scores.

Scope of the study

The main intension of the present study is to find the relation of achievement in mathematics of IX class students with social belongingness and gender.

Operational Definitions: -

Achievement in Mathematics

Achievement is one of the most important goals of education. Why students achieve or fail to achieve in schools has a way interested psychologists and educationists. Achievement in mathematics is knowledge attained or skill developed in the field of mathematics. Its measure is the score on achievement test in mathematics. Mathematics is achievement refers not only to obtaining to excellent marks in the attainment but it also refers to the attainment of mathematics is a subject demanding different mental abilities and hence different style of learning as compared to subjects.

Social belongingness

Social belongingness is the idea that the need to belong is a fundamental aspect of social motivation. Social belonging is a subjective feeling of acceptance or inclusion into a group of people, and it's a basic human need that people must satisfy to maintain their identity, mental health, and physical well-being.

Rural Area

A rural area or a countryside is a geographic area that is located outside towns and cities. Typical rural areas have a low population density and small settlements. Agricultural areas and areas with forestry are typically described as rural, as well as other areas lacking substantial development.

Urban Areas

Urban areas are locations with high population density. Urban areas are in cities and towns. An urban area is often the main area of employment. Urban areas have the most human-built structures. This built environment creates opportunities for health such as sidewalks and public transit.

Secondary school students

A secondary school or high school is an institution that provides secondary education. Some secondary schools provide both lower secondary education (ages 11 to 14) and upper secondary education (ages 14 to 18).

Lower secondary education

First stage of secondary education building on primary education, typically with a more subject-oriented curriculum. Students are generally around 11–16 years old

Upper secondary education

Second stage of secondary education and final stage of formal education for students typically aged 16–18, preparing for tertiary/adult education or providing skills relevant to employment, usually with an increased range of subject options and streams.

Statement of the Problem: -

A study of achievement in mathematics of secondary school students.

Objective of the study: -

1. To find out the difference between achievement in Mathematics of class IX students on the basis of gender.
2. To find out the difference between achievement in Mathematics of class IX students on the basis of their social belongingness
3. To find out the difference between achievement in Mathematics of class IX boys on the basis of their Social-belongingness.
4. To find out the difference between achievement in Mathematics of class IX girls on the basis of their Social-belongingness.

Research hypothesis: -

1. There is no significant difference between the achievements in mathematics of class IX students on the basis of gender.

2. There is no significant difference between the achievements in mathematics of class IX students on the basis of their social belongingness.
3. There is no significant difference between the achievements in mathematics of class IX boys on the basis of social-belongingness.
4. There is no significant difference between the achievements in mathematics of class IX girls on the basis of their Social-belongingness

Method: -

The descriptive or survey research method was used for present research work.

Population of the study: -

All the students studying in class IX of government and private Secondary schools of Seraikela Kharsawan District.

Sample and sampling method: -

For the present study a sample consisted of 245 students of class IX from government and private Secondary Schools in Seraikela Kharsawan district was selected randomly.

Research tool:

An Achievement Test in Mathematics on selected topics from the IX Standard Mathematics portion has been constructed by the researcher.

Statistical methods: -

In order to attain the objectives of the study, the investigators used Mean, S.D., and t-test" technique.

Analysis and interpretations of data: -

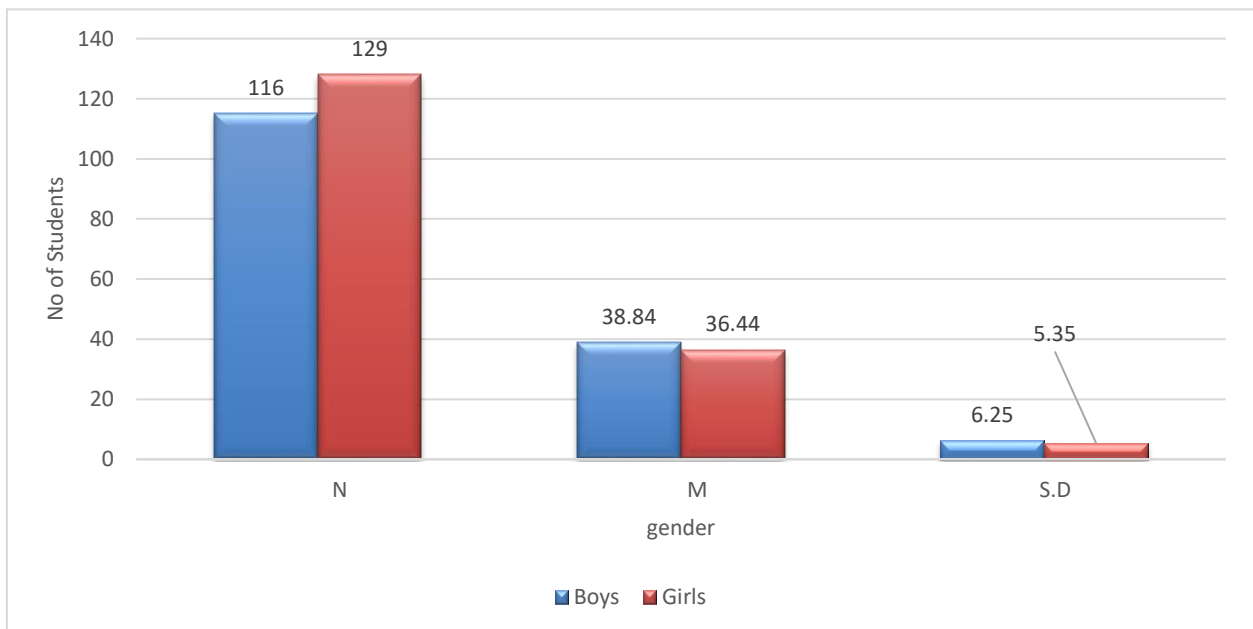
Hypothesis – 1

There is no significant difference between the achievements in mathematics of class IX students on the basis of gender.

The above hypothesis is tested by employing t-value. The results are presented in Table – 1.

Table 1: - Comparison of mean achievement in mathematics scores of classes IX from government and private Secondary Schools of Seraikela Kharsawan district on the basis of gender.

Gender	N	M	S.D	t-value	d.f	Level of sig
Boys	116	38.84	6.25	3.173	243	0.01
Girls	129	36.44	5.35			



Data presented in Table 1 reveal that there exists statistically significant difference between achievement in mathematics mean scores of male and female students class IX from Government and Private Seraikela Kharsawan district. It means that male students have better achievement in mathematics than female students.

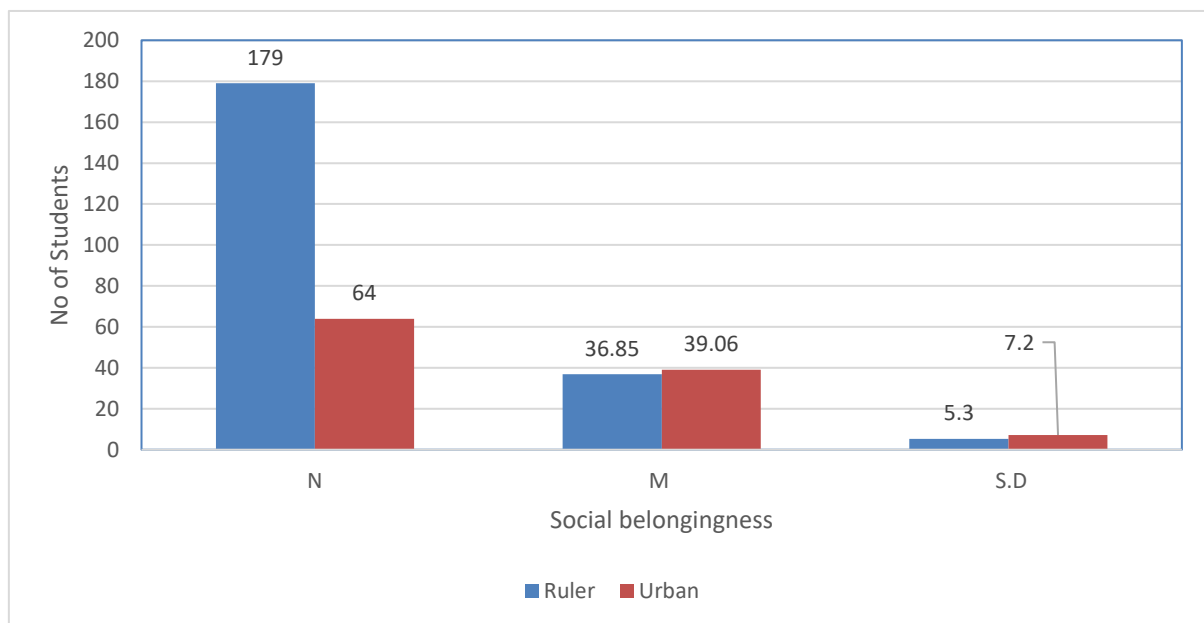
Hypothesis –II

There is no significant difference between the achievements in mathematics of class IX students on the basis of their social belongingness.

The above hypothesis is tested by employing t-value. The results are presented in Table – II.

Table 2: - Comparison of mean mathematical achievement scores of classes IX from government and private Secondary Schools of Seraikela Kharsawan district on the basis of their social belongingness.

Social belongingness	N	M	S.D	t-value	d.f	Level of significant
Rural	180	36.85	5.3	2.264	243	0.05
Urban	65	39.06	7.2			



Data represented in the Table 2 reveals that there exists a statistically significant difference ($t=2.264$) between rural and urban students' achievement in mathematics mean scores of classes IX from government and private Secondary Schools of Seraikela Kharsawan district. It means that urban students have more or less similar achievement in mathematics than rural students. However, the mathematical achievement mean scores of urban students ($M=39.06$) were founded higher than rural students ($M=36.85$).

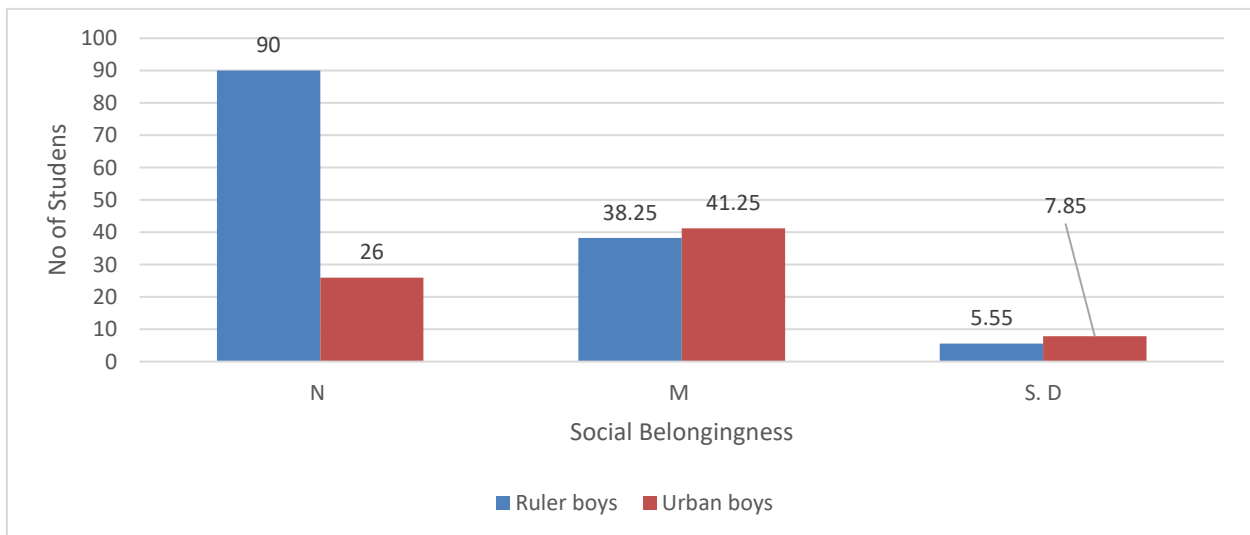
Hypothesis –3

There is no significant difference between the achievements in mathematics of class IX boys on the basis of social-belongingness.

The above hypothesis is tested by employing t-value. The results are presented in Table – 3.

Table 3: - Comparison of mean achievement in mathematics scores of male students of class IX from government and private Secondary Schools of Seraikela Kharsawan district on the basis of their social belongingness.

Social Belongingness	N	M	S. D	t-value	d.f	Level of significant
Ruler boys	91	38.25	5.55	1.853	116	Not significant
Urban boys	27	41.25	7.85			



Data represented in the Table 3 reveals that there exists no significant difference between the Achievement in mathematics mean scores of rural boys and urban boys ($t=1.853$). It means the rural boys and urban boys students of class IX from government and private Secondary Schools in Seraikela Kharsawan district have more or less similar in their achievement in mathematics. However, the achievement in mathematics means scores of urban boys students ($M=41.25$) were founded higher than rural boys students ($M=38.25$).

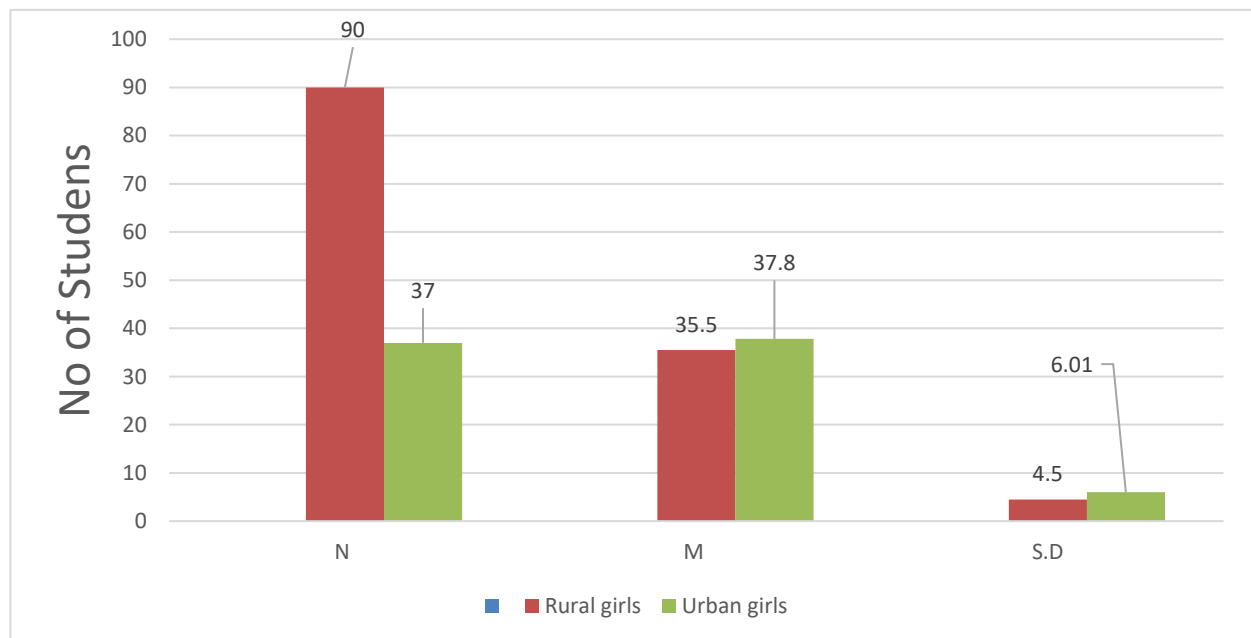
Hypothesis- 4

There is no significant difference between the achievements in mathematics of class IX girls on the basis of their Social-belongingness.

The above hypothesis is tested by employing t-value. The results are presented in **Table – 4**.

Table 4: - Comparison of mean achievement in mathematics scores of class IX female students on the basis of their social belongingness.

Social Belongingness	N	M	S.D	t-value	d.f	Level of significant
Rural girls	90	35.5	4.5	2.099	125	0.05 significant
Urban girls	37	37.8	6.01			



Data presented in the Table 4 reveals that there exists statistically significant difference ($t=2.099$) between the achievement in mathematics mean scores of rural female and urban female students of class IX from government and private Secondary Schools in Seraikela Kharsawan district. It means that urban female students have better achievement in mathematics than rural female student.

CONCLUSION

In this research, it can be said that since the girl students, rural students and rural girl students of class IX have low achievement in mathematics than their counterparts. It shows that there are still possible rooms for improvement in achievement level of girl students by changing the attitude of parents and teachers towards girl student’s mathematical learning. This can be done by abolishing gender discrimination at school and home environment and to aware both teachers and parents about their girl student’s performance in the subject of Mathematics. It is recommended that rural parents should provide more or equal learning opportunities to their girl students as they were providing to their boys so that they can learn mathematics at their fullest capacities. However, it is interesting to know that

social belongingness of urban male and rural male students is almost similar in their achievement in mathematics scores in Seraikela Kharsawan District. However, this study cannot be conclusive as to the size of the sample is small.

Suggestions: -

1. The present study focuses on only government and private schools. It can be done in government, government aided, and government-unaided, private, missionary and charitable schools of Seraikela Kharsawan district.
2. Similar type of study can be done in the higher secondary school.
3. An experimental study can also be done in this area.
4. A Co relational and comparative study can also be done between the student's achievement in mathematics and other independent variables.

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