

Study of Numeracy Skills of Garde IV Students of Distict Yamuna Nagar, Haryana, India with Relation to Their Demographic Variables

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ABSTRACT: Mathematics is considered as one of the most important subjects. It is a subject of numbers, shapes, data, measurements and also logical activities. Mathematics is a historical subject. It has been explored by various mathematicians across the world since centuries, in different civilizations. Aryabhatta, born in 476 CE, is known as the Father of Indian Mathematics. The word mathematics derived from the Greek word “mathematics”, which means “subject of instruction”. Numeracy skills are the basics of mathematics from ancient times. The basic numeracy skills include Addition, Subtraction, Multiplication and Division. These skills are necessary for every individual to excel in life. In the present study researcher tries to identify the Numeracy skills of Grade IV students of district Yamuna Nagar. The sample of 100 students was selected through random sampling and ATNS (Achievement Test for Numeracy Skills) were used by the researcher. The findings of the study showed that there is no significant difference between the numeracy skills of male and female students but there is a significant difference between the numeracy skills of different age group students.

KEYWORDS: Mathematics, Age, Gender, Numeracy.

INTRODUCTION

According to National Policy of Education (1986) Mathematics should be visualized as the vehicle to train a child to think, reason, analyses and articulate logically. National Curriculum Framework (NCF) 2005 emphasises that the main goal of Mathematics education in schools is the 'mathematization' of a child's thinking. Clarity of thought and pursuing assumptions to logical conclusions is central to the mathematical enterprise. While there are many ways of thinking, the kind of thinking one learns in. Mathematics is an ability to handle abstractions and an approach to problem solving. The National Policy on Education (2020) recognizes that the ability to read, write and perform basic operations with numbers is a necessary foundation and an indispensable prerequisite for all future schooling and lifelong learning. **Jaadui Pitara**, a play based learning has been launched on 20th February, 2023 by NCERT aligning with National Education Policy 2020 (NEP 2020) and National Curriculum Framework for Foundational stage has toys, games, puzzles, puppets, posters, flashcards, story cards, playbooks for students, and handbooks for teachers.

Concept of Numeracy

A student's mathematical knowledge is totally depends upon basic understanding of numbers and basic arithmetic operations. Numeracy skills should be acquired at foundational stage of a student. Studies have shown that students who perform poorly on these skills at early years of schooling are likely to perform poorly in mathematics through higher classes, create a wide learning gap and face lots of problems in juggling with maths.

Numeracy skills are mathematical literacy. The development and internalization of numeracy skills in students are essential for student's success in school and beyond the school life. Numeracy skills refer to the skills which are uses to interpret and communicate mathematical information and also use these skills to solve real world problems. These include ability to understand basic maths like addition, subtraction, division and multiplication. Numeracy doesn't mean complex skills, like algebra, it means being confident enough to use basic maths in real life situations. Children need numeracy skills to do everyday things like: solving problems, making sense of information they receive in form of numbers.

Justification of Study

Maths includes noticing numbers, shapes, patterns, size, time and measurement. Applying maths into everyday experiences is very easy and fun. Maths is everywhere, in the playground, at the shops and home. A child's initial years are the time of rapid learning. Research tells us that children have an inborn capacity to understand numbers. Developing numeracy skills early, gives children an

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important foundation for their learning and development. It helps prepare them for daily life, including general problem-solving and handling money.

Numeracy skills can greatly improve many factors in one's life e.g. improvements in education, social life and career. Numeracy skills are the basis of mathematics for all students to cop up at school, at work and their daily life. To be numerate is to confidently and effectively use mathematics to meet the everyday demands of life. Numeracy is important for individuals to develop logical thinking and reasoning strategies in their everyday activities. In today's life children need numeracy skills to make sense of numbers, time, patterns and shapes for activities like cooking, reading receipts, reading instructions and even playing sport. In present study researcher study the numeracy skills of students of grade IV of district Yamuna Nagar. The purpose of the study was the difference in numeracy skills of students on the bases of their Gender and age level.

Statement of the Problem

The Study of Numeracy Skills of Grade IV students of District Yamuna Nagar in relation to their Demographic Variables.

Objectives of the Study

- ❖ To study the numeracy skills of Grade IV students.
- ❖ To study the difference in level of numeracy skills of male and female students.
- ❖ To study the difference in level of numeracy skills of different age group of students.

Hypothesis

- I. There exists no significant difference in numeracy skills of male and female student.
- II. There exists no significant relationship between numeracy skills of different age of student.

Delimitation of the Study

- The study is delimited to students in Yamuna Nagar district only.
- The study is delimited to students studying in primary level specially Grade IV four in schools.
- The study is delimited to the age group of 8-10 years.
- The study is delimited to the private schools affiliated to CBSE of Yamuna Nagar.

REVIEW OF RESEARCH

Kilpatrick et al. (2001) aimed the numeracy skills of elementary school students. The objectives were to identify the factors influencing numeracy skills and to examine the relationship between numeracy skills and demographic variables. The study used a descriptive research design and employed a standardized numeracy test as the research tool. The results showed that student's numeracy skills were influenced by their socio-economic status and parental education. **Clements (2004)** aimed to identify the effective teaching methods and to investigate the relationship between math education and students' numeracy skills. The study used a quasi-experimental research design and employed a math achievement test as the research tool. The results showed that students who received math education using manipulatives had better numeracy skills than those who received traditional math education. **Gersten et al. (2005)** aimed to investigate the math instruction of elementary school students. The objectives were to identify the effective math instruction methods and to examine the relationship between math instruction and students' numeracy skills. The results showed that students who received math instruction using explicit teaching methods had better numeracy skills than those who received math instruction using implicit teaching methods. **Jordan et al. (2007)** to identify the factors contributing to math difficulties and to investigate the relationship between math difficulties and students' numeracy skills. The results showed that students' math difficulties were influenced by their working memory and math anxiety. The conclusion was that math difficulties are a significant obstacle to students' numeracy skills development. **Siegler et al. (2009)** aimed to identify the stages of math development and to examine the relationship between math development and students' numeracy skills. The results showed that students' math development progressed through several stages, including the use of counting strategies and the development of place value understanding. **The National Mathematics Advisory Panel (2008)** aimed to examine the math education of elementary school students. The objectives were to identify the effective math education practices and to investigate the relationship between math education and students' numeracy skills. The results showed that effective math education practices include the use of explicit teaching methods, the provision of opportunities for math practice, and the use of technology to support math instruction. **Hyde (2005)** studied the performance of boys and girls in mathematics. The study used a quantitative approach, collecting data from 100,000 students. The results showed that boys and girls performed equally well in mathematics. **Lubienski (2006)** aimed to investigate the effect of school type on student achievement. The objective was to compare the performance of students in public and private schools. The study used a quantitative approach, collecting data from 500 students. The results showed that students in private schools performed better than those in public schools. The conclusion was that school type has a significant effect on student achievement. **Verhaeghe (2011)** investigated the effect of age on student achievement. The results showed that older students performed better than younger students.

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Population and Sample:

Total population for the study was the Grade IV students of district Yamuna Nagar. The sample of 100 grade IV students was selected from random sampling method.

Data analysis and Interpretations:

Score of Male and Female students in ATNS

Table 4.1

Score in ATNS	Males	Females	Total Students
0-10	0	0	0
11-30	9	10	19
31-40	12	17	29
41-60	21	26	47
Above 60	4	1	5
Total	46	54	100

Table 4.1 depicts that 19 students (9 Males and 10 Female) have weak numeracy skills, who scored 11-30 and 29 students (12 Males and 17 Females) have average numeracy skills. The students, who have scored between 31-40 are 47 students (21 Males and 26 Females) have scored between 41-60, which means that they have fine numeracy skills and 5 students (4 Males and 1 Female) scored above 60 that means they have excellent numeracy skills. The scores of Males and Females are shown in the following diagram:

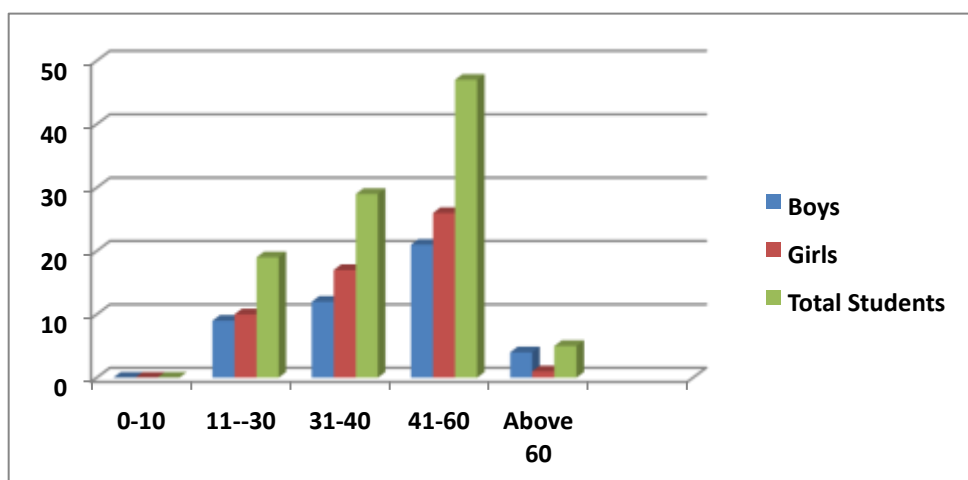


Diagram: 4.1

Significance of difference between Male and Female students

Table 4.2

Group	n	Mean	Variance	S.D.	t-ratio
Male	46	9.2	64.7	8.044	-0.263
Female	54	10.8	120.7	10.986	

Table 4.2 depicts that the mean scores of male and female student are 9.2 and 10.8 with S.D. 8.04 and 10.986 respectively. The calculated t-value comes out to be -0.263 is significant at 0.05 level of significance. It means that there exists no significant difference in numeracy skills of male and female student. Hence, the Null hypothesis (1) is accepted.

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Frequency distribution of total number of age 9 & 10 yrs students

Table 4.3

Score in ATNS	Age 9 years	Age 10 years	Total Students
0-10	0	0	0
11-30	8	11	19
31-40	9	20	29
41-60	25	22	47
Above 60	3	2	5
Total	45	55	100

Table 4.3 shows the frequency distribution of total scores of boys of age 9 and 10 years. The maximum frequency is 11 for age 10years and for 10 for age 9years. They both fall under class interval 41-60. Frequency distribution of total scores of boys of both ages is being shown below in figure 4.2:

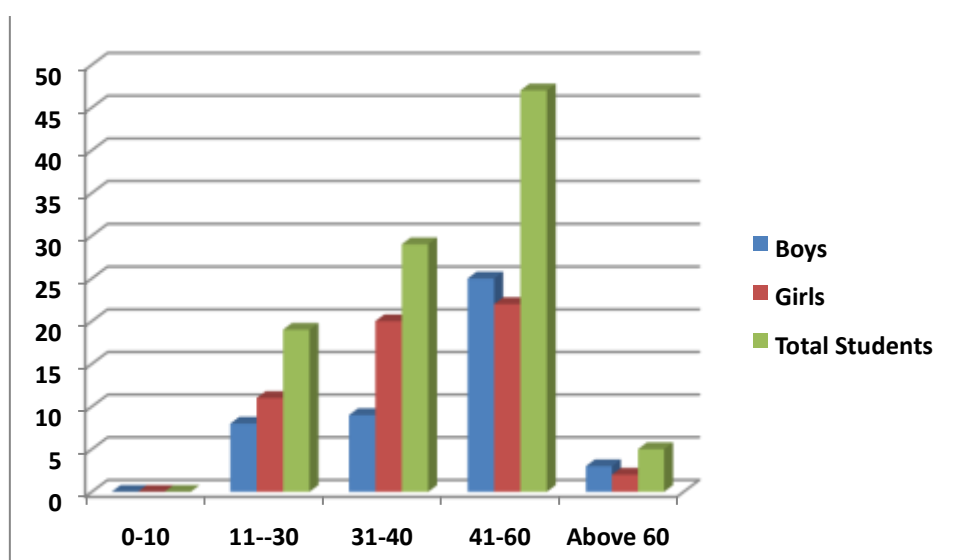


Diagram: 4.2

Significance of difference between age 9 and 10 years

Table: 4.4

Group	Mean	Variance	S.D.	t-ratio
Age 9	9	93.5	9.66	-0.32
Age 10	11	101	10.04	

Table 4.4 depicts that the mean scores of Age 9 and Age 10 students are 9 and 11 with S.D 9.66 and 10.04 respectively. The calculated t-value comes out to be -0.32 which is greater than the table value at 0.05 level of significance. It means that there exists a significant difference in numeracy skills of age 9 and 10 years students. Hence, the Null hypothesis (1) is rejected.

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MAIN FINDINGS OF THE STUDY

- The analysis showed no significant difference in numeracy skills between Males and Females. Both genders demonstrated similar levels of performance across various numeracy tasks.
- The analysis also showed a significant difference in numeracy skills between 9 years old students and 10 years old students. It was observed that 10 years old students performed better than 9 years old students in ATNS, indicating a possible maturity or cognitive development. Advantage.

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