ATTITUDE OF ELEMENTARY SCHOOL STUDENTS TOWARDS MATHEMATICS LEARNING IN ARUNACHAL PRADESH

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Mathematics is the science that draws the necessary conclusions, which is very important for our daily life activities. The present research aimed to study Class VIII students' attitudes towards mathematics in private and government schools in the Kamle District of Arunachal Pradesh. Descriptive-cum survey method has been used by applying simple random sampling. Sampling was done at two stages; firstly, six elementary schools were selected out of fifty, and at the second stage, twenty students were selected from each school. In this way, a total of 120 students were selected as respondents for the study. The attitude scale developed by Martha Tapia has been used for the survey. The study's finding reveals that Class VIII students show average attitudes towards mathematics. The attitude of boys was higher than girl students, on the other hand, no difference was found based on types of school (government and private school students).

Keywords: Attitude, Elementary school and Mathematics

Introduction

Mathematics education is necessary to fulfil the needs and expectations of individuals and society. It is vital for the harmonious personality of an individual by developing skills of basic calculations, deductive reasoning, and drawing conclusion. "The main goal of mathematics education in schools is the mathematisation of the child's thinking." (NCF, 2005). Etymologically, mathematics has been derived from the ancient Greek word 'Mathema,' which means 'that which learn.' It has also been considered the science of systematic reasoning and logical thinking. Mathematics is related to other subjects and helps understand other subjects (The National Policy on Education, 1986). For learning this subject, attention, motivation, and a suitable mathematical attitude are required. If students' attitude towards mathematics is positive, then the academic achievement of students will be high and vice versa (Mahanta and Islam 2012). Here mathematical attitude is an action or response expressed by an individual to a particular situation or an object.

The primary purpose of mathematics education is to appreciate mathematics' usefulness, power, and beauty and develop patience and persistence when solving problems. Mathematical curiosity and inductive and deductive reasoning are crucial to analyse and solve problems both in school and in real-life situations. Mathematics is an

essential subject in the modern education system and society. Mathematics education at the elementary stage develops the knowledge, skills, and attitudes necessary to pursue further studies in mathematics. Mathematics is used in computer science, physics, engineering, medical science, sociology, history, economics, etc. Hence, mathematics is one of the necessary subjects to be learned. Unfortunately, learning mathematics has been difficult for many students.

Further, in a country like India, learning mathematics is vital to getting a government job or in the private sector, but all the stakeholders like students, parents, and educators need to understand the real meaning and importance of mathematics. The development of mathematical anxiety (Mathemaphobia) in the children's minds is due to the forceful action of the parents and the teachers. Therefore, parents and teachers need to develop a positive attitude towards mathematics rather than forcing them to learn to fetch good marks. In many cases, children opted for mathematics by seeing their friends or by the influence of parents. According to NPE (1986), "Mathematics should be visualised as the vehicle to train a child to think, reason, analyse, and to articulate logically. In the context of NCF (2005), learning mathematics should make students happy rather than scared. It should lead learners to connect the knowledge outside the school. Mathematics is not only concerned with formulas and calculations; it is more than formula and mechanical procedure. Every developed country uses mathematics as a weapon, and every developing country dreams of it because mathematics helps develop technology, leading industries to develop more.

Significance of the Study

Mathematics helps in rational thinking, reasoning skill, self-confidence, time management, and budgeting money in day-to-day life of an individual. Mathematics is also widely referred to as the language of technology and science because the knowledge of mathematics influences the understanding of almost all science subjects. National Achievement Survey (2017) and Annual Status of Education Report- ASER (2018) revealed that the achievement of elementary students of Arunachal Pradesh in mathematics is not satisfactory. Many studies reveal that attitude and achievement are correlated. Hence researchers decided to study the attitude of students towards mathematics. Based on the review of related literature, it was found that many studies have been conducted on the attitude and achievement of students toward mathematics. However, no study has been conducted so far on the attitude of elementary school students toward mathematics in the Kamle district of Arunachal Pradesh. Kamle district is one of the 25 districts of Arunachal Pradesh which is remotely located. The district has a total population of 22,255 and a literacy rate of 69 per cent as of 2017.

Objectives of the Study

(i) To study the attitude of Class VIII students towards mathematics.

(ii) To compare the attitude of male and female Class VIII students towards mathematics.

(iii) To compare the attitude of government and private school Class VIII students towards mathematics.

Hypothesis

(i) $H_0$1-There is no significant difference between the attitude of male and female students of Class VIII towards mathematics.

(ii) $H_0$2- There is no significant difference between the attitude of Class VIII students of private and government schools towards mathematics.

Research Method: In the present study, a descriptive survey method was used to assess the attitude of the Class VIII students towards mathematics in the Kamle district of Arunachal Pradesh.

Population and Sample of the Study

All the 50 middle schools of Kamle district have been considered as the population for the study. A random sampling procedure was applied to select representatives from the population. Sampling was done at two stages; firstly, six elementary schools were selected among all the schools of Kamle district. At the second stage, 20 students were selected from each school. In this way, a total of 120 students were selected as respondents for the study.

Data Collection Procedure

In order to measure the attitude of students toward mathematics, the researcher employed a five-point attitude scale developed by Martha Tapia. It was a bipolar scaling method to measure positive or negative responses to the statements. There were five options against each statement such as; Strongly Disagree (A), Disagree (B), Neutral (C), Agree (D), Strongly Agree (E). Respondents were asked to indicate their degree of agreement with each statement, from strongly agree to strongly disagree. The attitude scale consists of forty statements, of which 11 were negative, and the remaining 29 were positive.

Statistical Techniques

After completing the scoring procedure, the researcher has organised all the raw scores and then logically tabulated them for easy and better understanding and easy analysis and interpretation of the data. For the present study, the researchers applied statistical techniques such as Mean (M), Standard Deviation (SD), Standard Error Deviation (SED), and t-test with the help of Microsoft excel. Furthermore, in the present study, researchers have used quantitative techniques to analyse and interpret the data as per the nature of the data obtained.

Result and Discussion of the Study

The present study attempted to examine students' attitudes toward mathematics concerning their gender and school types. Therefore, the result of the study has been presented in sequential order according to the objectives of the study.

Table 1
Attitude towards Mathematics
Frequency Distribution Table of Total Responses on Attitude

Class Interval	Frequency (f)	C.F
40-60	1	50
61-80	1	70

81-100	6	90
101-120	45	110
121-140	44	130
141-160	15	150
161-180	7	170
181-200	1	190

From Table-1, it can be observed that the maximum number of respondents scored between 100-120, i.e., 45, and the lowest number of respondents scored between 40-60, 60-80, and 180-200, i.e., 1.

Table 2
Comparison of Attitude with Tool Norm

S.No.	Sample	No. of students	Mean	SD
1	Present Study	120	124.67	21.6
2	Tools Norm Value	545	137.36	28.93

Table 2 shows that the mean score of students' attitude of the Kamle District of Arunachal Pradesh is lower than the tool norm value. The possible reason behind this could be the location of the place, tribal society (Ngailiankim, 1987; Rai 1981 and Singh, 2019), and lower educational status. The standard deviation value of the present study is much lower than the normal value. This shows that there are fewer variations in the attitude of students in comparison to tool norm value. The possible reason behind this could be a similar type of exposure and facilities to the Kamle District of Arunachal Pradesh students.

Table 3
Response of Students on Attitude Scale

Total Responses of Student on Each Statement						
S. No.	STATEMENTS	A	B	C	D	E
1	Mathematics is a very worthwhile and necessary subject.	11	23	19	27	39
2	I want to develop my mathematics skills.	5	11	26	35	43
3	I get a great deal of satisfaction out of solving a mathematics problem.	13	26	34	36	11
4	Mathematics develops the mind and teaches a person to think.	6	14	18	47	35
5	Mathematics is important in everyday life.	6	16	18	36	44
6	Mathematics is one of the most important subjects for people to study.	6	16	26	36	36

7	A high school math course would be very helpful no matter what I decide to study.	13	18	42	33	14
8	I can think of many ways that I use math outside school.	1	27	32	39	12
9	Mathematics is one of my most dreaded subjects.	9	36	29	23	21
10	My mind goes blank, and I am unable to think clearly when working with mathematics.	14	24	26	36	18
11	Studying mathematics makes me feel uncomfortable.	9	31	30	33	17
12	Mathematics makes me feel nervous.	15	28	27	27	21
13	I am always under a terrible strain in a math class.	15	23	31	28	23
14	When I hear the word mathematics, I have a feeling of dislike.	13	22	21	35	29
15	It makes me nervous to even think about having to solve a mathematics problem.	15	24	30	32	17
16	Mathematics does not make me scared at all.	27	21	23	32	17
17	I have a lot of self-confidence when it comes to mathematics.	26	29	36	19	10
18	I am able to solve mathematics problems without too much difficulty.	33	32	36	13	6
19	I expect to do fairly well in any math class.	13	33	38	25	10
20	I am always confused in my mathematics class.	11	26	37	30	15
21	I feel a sense of insecurity when attempting mathematics.	12	28	32	33	14
22	I learn mathematics easily.	25	24	35	25	11
23	I am confident that I can learn advanced mathematics.	21	20	28	44	7
24	I have usually enjoyed studying mathematics in school.	24	27	31	24	11
25	Mathematics is dull.	18	17	27	32	24
26	I like to solve new problems in mathematics.	28	16	33	24	16
27	I would prefer to do an assignment in math than to write an easy.	15	37	24	30	13
28	I would like to avoid using mathematics in college.	9	23	27	34	27
29	I really like mathematics.	26	22	31	30	11
30	I am happier in a math class than in any other class.	20	26	32	20	21
31	Mathematics is a very interesting subject.	17	21	26	35	21

32	I am willing to take more than the required amount of mathematics.	19	25	34	27	15
33	I plan to take as much mathematics as I can during my education.	19	24	27	31	19
34	The challenge of math appeals to me.	13	32	31	32	13
35	I think studying advanced mathematics is useful.	11	19	18	39	32
36	I believe studying math helps with problem-solving in other areas.	11	22	31	29	26
37	I am comfortable expressing my ideas on looking for solutions to a difficult problem in math.	24	15	32	28	19
38	I am comfortable answering questions in math class.	18	2	36	31	12
39	A strong math background could help me in my professional life.	10	16	27	34	31
40	I believe I am good at solving math problems.	24	24	33	25	12

The table shows that the highest number of responses strongly agreed (E) against statement No. 5: Mathematics is important in everyday life. Out of 120 responses, 44 respondents strongly agreed with the given statement as they might have felt the importance of mathematics. Again, out of a total of 120 respondents, 33 responded strongly disagree (A) against statement No. 18: I am able to solve mathematics problems without too much difficulty. Most of the responses made by the students towards mathematics were positive. From the table, we can conclude that the attitude of Class VIII students towards mathematics in the Kamle District of Arunachal Pradesh was average.

Table 4

Comparison between the Attitude of Male and Female Class VIII Students towards Mathematics

Group	Number	Mean	SD	SED	Df	t-value
Male	60	127.3	18.32	3.83	118	1.65
Female	60	120.98	23.39			

Significant at 0.05 level of significance

Table 4 shows that the calculated t-value of 1.65 is lesser than the tablet-value of 1.98 with df (118) at a 0.05 level of significance. Hence, the Null Hypothesis ($H_0$1) "There is no significant difference between the attitude of male and female students of Class VIII towards mathematics" is accepted. Hence, it can be concluded that there is no significant

difference in attitude of male and female students towards mathematics.

This finding is similar to findings of Mohammed Lawsha, (2011), Farooq and Shah (2008), Singh and Verma (1992), *Khatoon* (1988), who found no difference based on gender. However, Nongsiej and Syiem (2014), *Mahanta* and Islam (2012), Rai (1981) attitude of males is higher than females, but the findings of Baskaran (1991) have the opposite result. The possible reason for this difference may be that male and female students get similar academic experiences in mathematics from their parents and teachers.

Conclusion

The present research aimed to study the attitude of Class VIII students in terms of gender (male and female), school type (private and government). The overall attitude score of students was lower than the tool norm. Further, the result of the study shows that no difference was found based on gender and school type. The status of attitude towards mathematics is lower than the tool norm, and achievement in the subject is not up to the mark as per the ASER-2018 report. Hence, there is a need to overhaul the mathematics teaching-learning process in general and the Kamle District in particular.

Table 5

Comparison of the Attitude of Private and Government Schools of Class VIII Students towards Mathematics

Group	Number	Mean	SD	SED	Df	t-value
Government	60	121.65	24.19	3.85	118	1.30
Private	60	126.67	17.47			

Significant at 0.05 level of significance

Table 5 shows that the calculated t-value 1.30 is lower than table-value 1.98 with df (118) at a 0.05 level of significance. Hence, the Null Hypothesis ($H_0$2) "There is no significant difference between the attitude of Class VIII students of private and government schools towards mathematics" is accepted. Hence it can be concluded that the private and government school students have an equal attitude towards mathematics. Furthermore, the private and government school students of Class VIII were found to have a common attitude towards mathematics; this could be because the government and private schools have shared the same curriculum, assessment, and evaluation.

Educational Implications

The present study has dealt with the attitude of Class VIII students of the Kamle District of Arunachal Pradesh towards mathematics concerning gender and type of schools. The present study is an excellent contribution to the existing body of knowledge. The finding of the research study would be helpful to the policymakers, parents, sociologists, researchers, teachers, and teacher educators. It would help private, and government schools organise desired changes in the mathematics teaching-learning process to develop a

suitable attitude towards mathematics. The state government should organise some in-service teacher training to update the teachers with appropriate teaching methods of mathematics at the elementary stage. Department of Education of Rajiv Gandhi University, the only university in the state, should update the curriculum of teacher education programme as per the students' needs to develop a right attitude among the learners.

Delimitation

The present study's findings are delimited to the attitude of Class VIII students towards mathematics in the elementary schools of Kamle District of Arunachal Pradesh.

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