Attitudes of the Secondary Level Dhimal Students towards Mathematics and its Relationship with their Achievement

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Abstract

This research work mainly explores the attitudes of 50 Dhimal students towards Mathematics subject. Mathematics is a major subject to study for the students form Primary level to Master level and above. So it has been given a high priority in school curriculum. In such context, this research paper focuses on the ideas and attitudes of the students of secondary level from a marginalized group of Dhimal people. The main problem of the study was to explore the attitudes of the Dhimal students towards mathematics. The objectives of the study were to find out the attitude and achievement of Dhimal students' towards the school mathematics. The nature of this study was of survey type and based on quantitative data. The researcher collected the data about the attitude of Dhimal students towards mathematics and their achievement as sample from Radhika S. School and Araniko S. School in Urlabari, Morang. It was found that the secondary level Dhimal students had positive attitude towards mathematics.

Keywords: Attitudes, Curriculum, Marginalized people, Mathematics, Dhimal

Introduction

The term ‘mathematics’ has been derived from an ancient Greek word “Manthancian”, which means "inclined to learn", Benjamin Pierce, one of the best of the American-trained mathematician said that "Mathematics is the science that drawn necessary conclusion". Thus mathematics like language, is a basic tool of communication. It is essential for everyday life as well as for

higher study in the fields of science and technology. In general, mathematics learning helps the people to understand and interpret the very important quantitative aspects of living and natural phenomena.

Mathematics has been given a priority in school level curriculum around the world including Nepal. Nepal Educational System Plan (NESP, 2028 BS) introduced national level curriculum at first in which mathematics became core curriculum. Next, Nepal Education Commission (NEC, 2049) had been implemented. It also focused mathematics as major subject in its curriculum. Now mathematics is compulsory subject through the grade one to ten and extra optional subject for last two years of secondary education. Holistically, in Nepalese context, mathematics is charged as complex subject and a cause of failure of student in school education.

Dhimal is considered as an ethnic group of Terai with distinct identification among the various ethnic groups settling in the south east region of Nepal. This tribe is usually found in Jhapa and Morang districts of Nepal (as cited in Neupane, 2011). As like the other ethnic groups, the Dhimals also have their own culture, language; dresses etc. Among many factors, which has influenced the learning behavior of the Dhimal students, one of the factors is the language problem. Due to language problem they find difficulty in understanding the lessons taught by the teacher in the class due to which they hesitate to express their views regarding the subject matter and raise questions in the class. As mathematics is a subject which can be learnt through active participation, continuous practice and willingness but because of the language problem they cannot adopt these learning techniques and thus it creates frustration in them. So, all these conditions develop a negative attitude towards mathematics learning and the achievement in this subject becomes low.

Statement of the problem

The problem of this study is mainly concerned with the relation between attitude and achievement of Dhimal students in mathematics at secondary level. With regard to the symbolism, terminology, contents, theorem and techniques mathematics is considered as a body of knowledge in the area of science. Other subjects cannot be developed in a descriptive level without the knowledge of mathematics. On the other hand, it is also a practical subject and abstract science. So, most of the students, take it as a difficult subject than other subjects in school level. So that the teacher should heartily realize about it and deeply study about curriculum and its level wise objectives and textbook also, because teacher is the important person, who implements the curriculum in school. They are responsible for implementation of attitudes towards teaching subject mathematical attitudes with achievements of their students. So, the main problem of this research study is to find the Dhimal students' attitude towards mathematics and also to find out gender related differences in learning mathematics.

Objectives of the Study

The objectives of this study are as follows:

i. To find out the attitude and achievement of Dhimal students' towards the school mathematics.

ii. To compare Dhimal boys students' and Dhimal girls students' attitude towards mathematics.

Methodology

The nature of this study was of survey type and based on quantitative data. The researcher collected the data about the attitude of Dhimal students towards mathematics and their achievement as sample from Radhika H. S. School, and Araniko H. S. school in Urlabari, Morang. The researcher utilized both primary and secondary sources of data to complete this study. In order to

draw the representative sample for the study, the sample schools were selected by stratified sampling method and the students and teacher were selected by purposive sampling method.

An attitude scale of mathematics with 30 questions and achievement test items were administered as a tools for the study. The interview schedules were developed for students, teachers and observation form was made.

Analysis and Interpretation

This research article is quantitative in its nature. The study focused on the attitudes of secondary level Dhimal students towards mathematics. Accordingly, the necessary data were collected to fulfill the objectives of the study. To obtain the necessary data 50 students of two different schools were selected. The collected data were classified, tabulated and analyzed according to the objectives of the study. In the first set of attitude scale, 30 questions from the five areas on characteristics of students towards mathematics were included. The second set was an achievement test of students containing 40 items of multiple-choice questions towards mathematics and the third set was an interview schedules together with observation in class for students.

The obtained data were statistically analyzed and interpreted by the means of statistics. The mean and standard deviation of these data were calculated item wise and area wise in the attitude scale of students on the basis of school and gender. Similarly, for the achievement test administered the statistical tools like mean and standard deviation.

Calculated data were compared in terms of status of the school, status of students, and status of gender was compared by putting t-test according to their obtained responses. Again relation between attitude and achievement towards mathematics were analyzed by computing correlation coefficient between attitude score and achievement score respectively. Also the data were analyzed by descriptively, interpretively.

Mean and Standard Deviation of Attitude of Dhimal students towards Mathematics

The mean and standard deviation of the scores obtained by the students are presented below:

Table – 1: Mean and standard deviation of different areas of Dhimal students' responses

S.N	Area of statements	Mean	Standard deviation
1	The study habit in mathematics	19.21	3.21
2	The enjoyment in doing homework	18.23	3.14
3	Interest on studying mathematics and text book of mathematics	20.35	2.95
4.	The local instructional materials used in teaching mathematics	20.97	4.12
5	Importance of mathematics	18.56	3.79
	Total	97.02	17.21

The Study Habit in Mathematics

The above given table showed that the mean attitude value of secondary level Dhimal students in the study habit in mathematics was 19.21, which was comparatively more than 18. It proved that the Dhimal students' attitude in the study habit in mathematics was positive from their responses given by the respondents. This area of attitude consisted 6 statements and the ranged of mean value of the statements were 2.8 to 3.4. This revealed that the mean value of the respondent in all statement was more than 3. Hence; the attitude of Dhimal students in studying habit in mathematics was positive and it was concluded that. The knowledge of mathematics is necessary for daily life. Students wants to learn mathematic than other subjects. They are interested and attracted with the mathematics class. They are interested to study text book and concerning mathematics of mathematics. They are not feeling bore and time pass for studying mathematics.

Interest on Studying Mathematics and Textbook of Mathematics

The above given table 2 showed that the mean attitude score of interest on studying mathematics and textbook of mathematics was 20.35, which was more then 18. It implied that the attitudes of Dhimal students are positive according to the responses given by the respondents. The Ranged of mean scores of these statements were from 3.2 to 3.6 which revealed that the mean score of attitude of each Dhimal students on interest in studying mathematic and textbook of mathematics is positive and concluded the following statements. More students are agreed without available of standard text book, study of mathematics is incomplete. They want to revise the text book of mathematics, including new subject matter. They have strongly realized about important and needs of mathematics in modern age.

Dhimal Students' Attitudes towards the Study Habit in Mathematics

In order to find the Dhimal students attitude towards their study habits in mathematics the mean attitude scores of the boys and girls of Dhimal were compared by using t-test and are presented in table.

Table- 2: Dhimal students' attitude towards the study habits in mathematics

Compared group	N	Mean	S. d.	Mean diff.	df.	Tabulated t-value	Calculated t-value	Remark
Boys	25	18.17	4.21	2.73	48	1.96	2.51	>1.96
Girls	25	20.90	3.41					

The above table showed that the mean attitude scores of students towards mathematics of Dhimal boys and girls towards mathematics in relation to their study habits are 18.17 and 20.90 respectively. The mean difference of the two groups is 2.73, it indicate that comparatively the mean attitude of girl students' score towards mathematics in relation to their study habits is higher

than the mean attitude boys students score towards mathematics. And the calculated t-value was 2.51 where as the tabulated t-value is 1.96 at 0.05 level of signification and 48 degree of freedom which is greater than or higher than the tabulated t-value (i.e. 2.51>1.96). Hence the null hypothesis is rejected and alternative hypothesis is accepted. Then it is concluded that there is a significant difference between Dhimal boys' attitude and girls' attitude towards mathematics in relation to their study habits secondary level. Hence Dhimal girls' students are superior to Dhimal boys' student towards mathematics in relation to their study habits in secondary level.

Dhimal Students' Attitudes towards the Importance of Mathematics

In order to find the Dhimal students attitude towards the importance of mathematics the mean attitude scores of the boys and girls of Dhimal were compared by using t-test and are presented in table.

Table- 3: Dhimal students' attitudes towards the importance of mathematics

Compared group	N	Mean	S.d.	Mean diff.	df.	Tabulated t-value	Calculated t-value	Remark
Boys	25	17.59	3.34	1.95	48	1.96	1.88	<1.96
Girls	25	19.54	3.97					

This table implies that the mean attitude scores of students towards mathematics of Dhimal boys and girls towards mathematics in relation to the importance of mathematics are 17.59 and 19.54 respectively. The mean difference of the two groups is 1.95, it indicates that comparatively the mean attitude of girls students score towards mathematics in relation to the importance of mathematics is higher than the mean attitude boys students score towards mathematics. And the calculated t-value is 1.88 where as the tabulated t-value is 1.96 at 0.05 level of signification and 48 degree of freedom which is less than the tabulated t-value (i.e. 1.88<1.96). Hence the null hypothesis is accepted. Then it is concluded that there is no significant difference between Dhimal boy attitude and girls' attitude towards mathematics in relation to the

importance of mathematics in secondary level. Hence Dhimal girls' students and Dhimal boys' student towards mathematics in relation to the importance of mathematics are same in secondary level.

Dhimal Students' Achievement towards Mathematics : Teacher Made Test Analysis

There were 50 Dhimal students of secondary level consider for the study. To achieve these objectives, the researcher was consisted 40 items for covering the area mathematics and each correct answer was given by 1 mark.

The following table showed the mean and standard deviation of Dhimal students' achievement towards mathematics in teacher made text.

Table – 4: Mean and standard deviation of Dhimal students' achievement towards mathematics at teacher made text

Group compared	No of items	No of student	Mean	Standard deviation	C.V
Boys	40	25	23.9	8.75	36.61%
Girls	40	25	28	5.45	19.46%
Total	40	50	25.95	7.57	29.17%

The table showed that the mean score of Dhimal students' achievement is25.95. In this achievement text, the ranged of the achievement score are as 9 to 37. It showed that some students are very weak, some students are very intelligent and more students have medium knowledge in mathematics. But the whole achievement score showed that 65% of students favorite the mathematics.

The above table showed that the mean score of Dhimal boys and girls is 23.9and 28, which showed that the mean achievement of girls is better than that of boys. It showed that 70.7% and 59.3% of girls and boys favorite the mathematics respectively which showed that girls are superior to boys in achieving mathematics.

Findings and Conclusion

The findings of this study on the basis of analysis of the collected data are as following:

- The Dhimal students studying at secondary level had positive attitude towards mathematics.
- Achievement of Dhimal students having positive attitude was significantly higher than Dhimal students having negative attitude towards mathematics.
- All the coefficient of correlation between attitude and achievement towards mathematics of secondary school Dhimal students' measures and found attitude towards mathematics were significant relationship. The secondary level Dhimal students had positive attitude towards mathematics.
- Achievement of Dhimal students having positive attitude were superior than achievement of Dhimal students having negative attitude.
- There is significant relationship between attitude and achievement on mathematics of Dhimal students.

After analyzing and interpretation the data, it is concluded that the secondary level Dhimal students had positive attitude towards mathematics and their positive attitudes correlate with their achievement in mathematics tests.

References

Acharya, R.P. (2006). *A study of attitude of secondary school students towards mathematics and its relationship with their achievement in mathematics*, Kritipur, T.U., Unpublished master thesis, Department of mathematic education.

Allport, G.W. (1935). *Attitudes*. In: Murchison, C., Ed., Handbook of Social Psychology, Clark University Press, Worcester, MA, 798-844.

Bendig, A. W., & Hughes, J. B. (1954). Student attitude and achievement in a course in introductory statistics. *Journal of Educational Psychology, 45*(5), 268–276. https://doi.org/10.1037/h0057391

Bhattarai, S.P. (2001). Attitude of ninth grade students towards geometry and its relationship with their achievement in Morang district, Kritipur, T.U., Unpublished master thesis, Department of mathematics education.

Dahal, K. (2012). Relational study between achievement and attitude of Dalit students in mathematics, Sukuna, T.U., Unpublished master thesis, Department of mathematics education.

Ghimire, S.P. (2000). A comparative study of the achievement of probability of pupils of secondary school , Kritipur, T.U., Unpublished master thesis, Department of mathematics education.

Jay, M. (2003). Critical Race Theory, Multicultural Education, and the Hidden Curriculum of Hegemony. *Multicultural Perspectives*, *5*(4), 3–9. https://doi.org/10.1207/S15327892MCP0504_2

Kafle, K.P. (2002*).* A study on attitude of secondary level student and teacher towards compulsory Mathematics. Tahachal: T.U, Unpublished Master Thesis, Department of Mathematics Education.

Neupane, S.R. (2001). Mathematics Achievement in primary school children of various Ethnic Group in Nepal Doctoral dissertation, Varanasi: Baharal Hindu University.

Pandit, E.K. (1999). *A study of secondary level students and teacher towards geometry,* Kritipur: T.U., Unpublished Master Thesis, Department of Mathematics Education.