

# Student's Attitude towards Mathematics

(A case study of secondary school students)

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## Abstract

Attitude is a central part of human identity. Everyday people love, hate, like dislike, favor, oppose, agree, disagree, argue, persuade etc. Hence attitudes can be defined as summary evaluation of an object of thoughts, Bohner & Wanke (2002). In this study attitude, confidence of learning mathematics, usefulness of mathematics, mathematics as male domain subject and perception of students towards mathematics were considered as major variables. 200 students from 10 secondary schools (among them 1 private school, 4 Govt. aided school and 5 Govt. secondary schools) were selected as a sample from the Athagarh Block of Cuttack District through systematic random sampling. The study revealed that private secondary school students' have a better attitude towards mathematics than the Govt. secondary school students; Government -aided school students' have a better attitude towards mathematics than the Govt. secondary school students; no significant difference between Government aided and Private secondary school students' attitude towards mathematics; the female students have a better attitude towards mathematics than of male students; no significant difference between urban and rural students' attitude towards mathematics; no significant difference between English and Odia medium students' attitude towards mathematics. In the end, the majority of the students accepted that maths was difficult, and it required a long investment to comprehend, Tachie (2022).

**Key Words:** Attitude, Confidence of learning mathematics, Usefulness of mathematics, Mathematics as male domain subject and Perception of students towards mathematics.

## The Context

An attitude can be as positive or negative based on people's evaluation, perception and activities; it could be concrete, abstract; attitude can be seen as more or less positive; attitude towards mathematics is one's own view and opinion; a positive attitude towards mathematics is reflects a positive emotional disposition in relation to the subject, similarly negative attitude is towards mathematics relates to a negative emotional disposition, Zan and Martino (2008). Mathematics should be taught on a compulsory basis to all pupils as a part of general education during the first ten years of schooling, Indian Education Commission (1964-66). The knowledge of mathematics is an essential tool in our society, Bishop (1996). The attitudes of students towards mathematics has a positive impact on the achievement of students; in the progressive society Mathematics plays a vital role and liberating role for escaping poverty, ignorance and blind beliefs; mathematics curriculum must be valid on various criterions like cognitive validity, content validity, process validity, ethical validity etc.; mathematics is a compulsory subject in Secondary Stages, NCF 2005. From the analysis of the related literatures it was found that there were no significant gender differences regarding mathematical ability of students of class IX and X(N. R. Patel 1984); no significant difference in the aptitude for mathematics among boys and girls, however a significant difference was found in their achievements, it was also found in some cases of boys that they prefer vocations related to mathematics in future (F. Khatoon, 1988); both positive and negative significant correlation between mathematics learning and ascendant temperaments like sociable, accepting and impulsive was found among students (V. Deshmukh, 1988); appropriate teacher instructional strategies resulted in higher average achievement as measured by students' grades. Studied the relationship between student gender, teacher's instructional strategies, and student achievements (W. J. McKeachie and Y. Lin 1991); girls have lower expectations for themselves in math than boys, and girls believe they lack mathematical ability. When girls do poorly in math's, they attribute their poor performance to their incompetence in math's (D. Stipek and H. Granlinski 1991); boys are more privileged than their girl counterparts and school students found that teachers' choice or perception as smart significantly predicted student attitudes towards science and math's (B. Moore 1993); Gendering of Australian schools – focuses on the separation of boys and girls in middle school and high school girls have a positive attitude toward school but a negative attitude toward math. This is done through coeducational programs as well as study of students of 7th, 8th and 10th standard in girls only schools (J. Gill 1994); students of teachers who were well organized, achievement-oriented and enthusiastic had more positive attitudes towards math and science (E. Fennema and J. Sherman 1995); positive attitude of girls towards mathematics decreases with increasing age. Girls initially have a more positive attitude toward math than boys, but as they progress in school, girls tend to have a more negative attitude. To improve the performance of girls in math's, teachers need to promote positive attitude towards math's in girls (D. Swetman 1995); success shows a casual predominance in attitudes in secondary school. No gender differences were found for this cause, but the elite status in

mathematics controlled the relationship (X. Ma and J. Xu 2004); gender, attitude towards mathematics, cognitive style and achievement in mathematics have the significant difference in achievement in math (S. Saha 2007); students had an inspirational perspective towards science and furthermore featured its fundamental impacts, grades and math accomplishment on these points of view, no orientation impact was distinguished, albeit a consistent decay was seen in young ladies Move toward The more they advanced in school. A various leveled investigation utilizing primary condition demonstrating uncovered that factors connected with inspiration are the fundamental indicators of perspectives toward science and social help from instructors and friends. Understanding these perspectives is additionally critical. (Peixoto, F. 2012);the female students of secondary schools had a better attitude towards mathematics in comparison to male students (Kannan et al., 2015); the attitudes of the students towards mathematics are at medium level, and that there is a significant difference between the attitudes of the students towards mathematics classes and the education levels of their fathers and the students' high school types and also determined that there is no significant difference between the gender of the students, the gender of the mathematics teachers, attending to an extra course, receiving private lessons for mathematics(Yasar, 2015); the students of both the genders have similar attitude towards mathematics. It means that gender differential has no impact on the attitude of students towards mathematics, (Ali et al., 2016);students 'learning of and performance in mathematics is affected by anumber of factors, including students' attitude towards subject, (Mazana, etal. 2018);on the concentrate on Investigating Understudies' Demeanor towards Learning Mathematics saw that as understudies' learning of and execution in science is impacted by a number of elements, including understudies' demeanor towards the subject, educator's informative interaction and school climate (Mazana, 2018)); the undergraduate perspective on mathematics and the factors influencing their mentality and activity to collect those objective design quizzes and mind-blowing examples of questionnaires that work. An example of the information provided by the School of Art was collected using a legitimate dataset, researcher, and test pole. The dependency was solved. Reasons for Rehearsals, Educational Qualities, Homer's Climate, and Undergraduate Studies. Mathematically, which helps in his approach, the five exploratory free responses are also available to get a deeper picture of the understudies. The basics of educational planning, how to nurture numerical testing, the appearance of instructional exercises, the need. For higher completeness, and for less certainty, students have an approach to mathematics - make direct decisions about undergraduate work, and undergraduate mentality and achievement are not necessarily related. (AwolAssen 2020);parental involvement classroom management and student's attitude and performance in mathematics was significant .it also revealed that contribution of all the variables student's attitudes are performance towards mathematics were significant but the contribution of teacher's affective support the parental involvement were the least. (Omosighon et. al., 2020); level of achievement of the male students in Mathematics at higher secondary level is more than that of their female counterparts. The achievement of the students in Mathematics at higher secondary level depends on the school environment. The level of achievement of the private schools' students is better than that of Government schools. The male students show more positive attitude towards learning Mathematics than the female students. Among the eight components, in few components students of Government schools show more positive attitude than Private schools, whereas, in some components students of Private schools show more positive attitude than that of the students of Government schools. (Sarma&Rabha, 2021);participants often used subtracted for their lesson and they preferred teacher centered classroom application which did not involve the hardware and software that allowed students interaction. he also revealed that the attitudes of the mathematics teacher had a positive effect towards using technology.(Mehmet,2021);the consequences of the review demonstrated that most research have an uplifting outlook towards the investigation of mathematical studies have shown that student's' attitudes are impacted by various elements, from educator focused instructing strategies to a methods of understudy learning how over, the absence of materials and absence of inspiration to learn math make a negative mentality, when poor. Students in math disdain execution gives the review presumes that student'sthe stimulus for learning impacted their demeanor towards science because of an absence of educating materials. In the end, the majority of the understudies accepted that math was troublesome, and it required a long investment to comprehend. (Tachie 2022).

### Objectives of the Study

- 1) To examine the difference between Government and Private secondary school students' attitude towards mathematics.
- 2) To examine the difference between Government and Government - aided secondary school students' attitude towards mathematics.
- 3) To examine the difference between Government- aided and Private secondary school students' attitude towards mathematics.
- 4) To examine the difference between male and female secondary students' attitude towards mathematics.
- 5) To examine the difference between urban and rural secondary students' attitude towards mathematics.
- 6) To examine the difference between English and Odia medium secondary students' attitude towards mathematics.

### Hypotheses of the Study

- 1) There is no significant difference between Government and Private secondary school students' attitude towards mathematics.
- 2) There is no significant difference between Government and Government aided secondary school students' attitude towards mathematics.
- 3) There is no significant difference between Government aided and Private secondary school students' attitude towards mathematics.
- 4) There is no significant difference between male and female secondary students' attitude towards mathematics.
- 5) There is no significant difference between urban and rural secondary students' attitude towards mathematics.
- 6) There is no significant difference between English and Odia medium secondary students' attitude towards mathematics.

### Method, Population and Sample

For this study researcher had used narrative survey method to find students attitude towards mathematics. 200 students from 10 secondary schools (among them 1 private school, 4 Govt. aided school and 5 Govt. secondary schools) were selected as a sample from the Athagarh Block of Cuttack District through systematic random sampling.

Type Of School	Medium	No Of Students	Male	Female	Rural	Urban
Govt.	Odia	75	40	35	28	47
Govt. Aided	Odia	75	48	27	25	50
Private	English	50	28	22	27	23

### Tool and Technique

The initial draft of the questionnaire is prepared by researcher for to collect data/information related to student's attitude towards mathematics from various sources like previous research paper, journals, and dissertation. The final draft of the questionnaire was send to few experts for necessary modification, based on expert judgments the questionnaire was finalized. After the completion of data collection, the researcher had analyzed the obtained data by using the statistical procedure. Researcher used the statistic mean, Standard deviation and t- test for analysis and interpretation the data.

### Analysis and Interpretation

#### Testing of Hypothesis-01

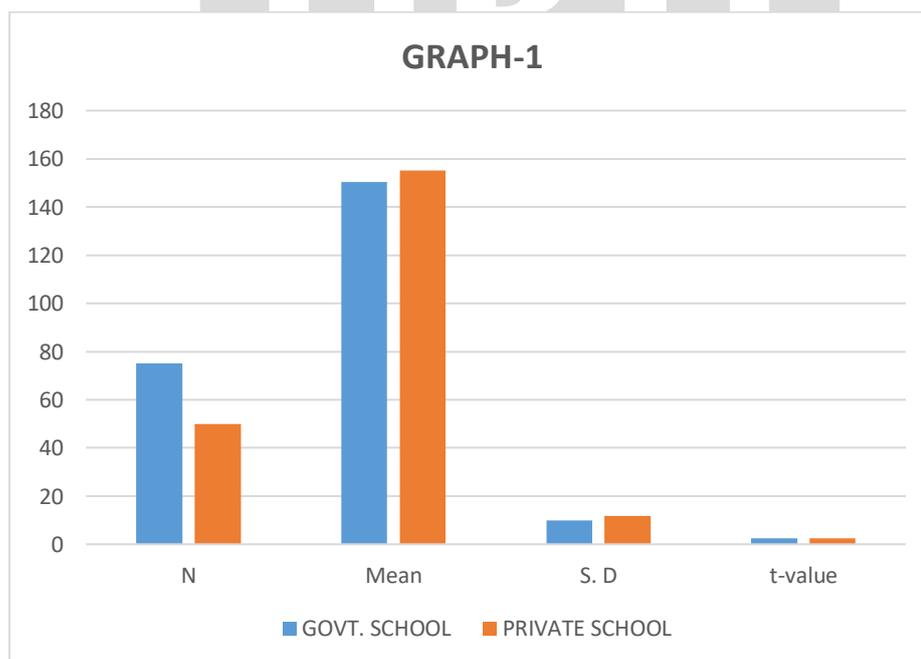
There is no significance different between govt. and private secondary school students' attitude towards mathematics.

Table 1

TYPE OF SCHOOL	N	Mean	S. D	t-value	Significant level
GOVT.	75	150.49	10.02	2.4322	Significant at 0.05 level
PRIVATE	50	155.27	11.80		

Distribution of Govt. & Private Secondary School Students Attitude towards Mathematics

Table 1 revealed that the mean score of Govt. school likewise, Private school students' attitude towards maths is 150.49 and 155.27 and S.D regard is 10.02 & 11.80. However, the mean score of Govt. school student's isn't very from Govt. aided school. Standard deviation score also shows that both the sample groups are heterogeneous. On that basis, the Private school students have a best mindset towards maths over that of Govt. school students. This t-value (2.4322) is higher than the table value 1.96. As such, there is significance different found between Govt. and Private school students' attitude towards math. **So, the null hypothesis is rejected.**



Graphical representation of Govt. and Private secondary school students' attitude towards mathematics

**Testing of Hypothesis-02**

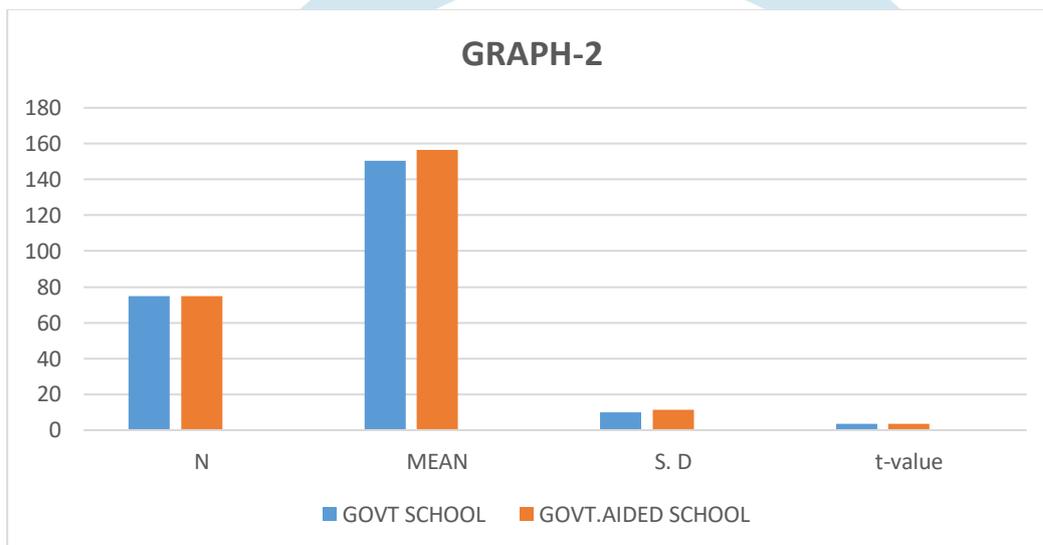
There is no significance different between govt. and govt. aided secondary school students' attitude towards mathematics.

**Table 2**

TYPE OF SCHOOL	N	Mean	S.D	t-value	Significant level
GOVT.	75	150.49	10.02	3.5315	Significant at 0.05 level
GOVT.AIDED	75	156.67	11.37		

**Analysis of Govt. & Govt. Aided Secondary School Students Attitude towards Mathematics**

Table 2 shows that the mean values of Govt. and Govt. aided school students' attitude towards maths is 150.49 and 156.67 and S.D regard is 10.02 & 11.37. In this, the mean value of Govt. school students isn't the vary from Govt. aided school students. Standard deviation regard shows that both the group is heterogeneous. So, the Govt. aided school students have a best mindset towards maths over that of Govt. school students; the t-score (3.5315) is more imperative than the table score 1.96. Thusly, there is significance different between Govt. and Govt. aided school students' attitude towards maths. **So, the null hypothesis is rejected**

**Graphical representation of govt. and govt. aided secondary school students' attitude towards mathematics****Testing of Hypothesis-03**

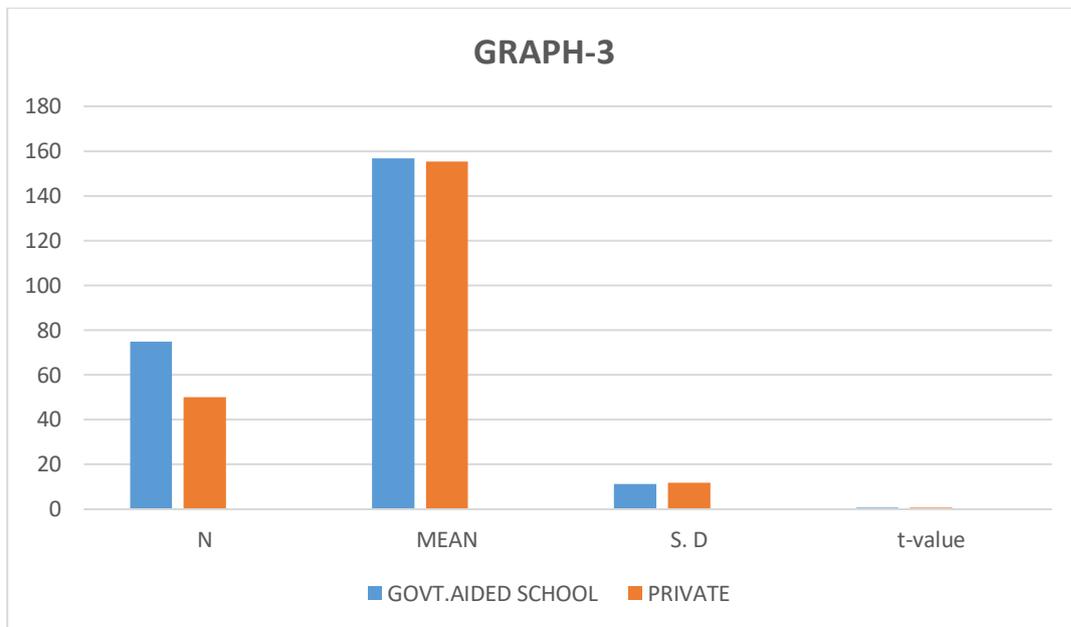
There is no significance different between govt. aided and private secondary school students' attitude towards mathematics.

**Table 3**

TYPE OF SCHOOL	N	Mean	S. D	t-value	Significant level
GOVT.AIDED	75	156.67	11.37	0.6643	No Significant at 0.05 level
PRIVATE	50	155.27	11.80		

**Distribution of Govt. Aided & Private Secondary School Students Attitude towards Mathematics**

Table 3 revealed that the mean potential score of Govt. aided and Private school students' attitude towards maths is 156.67 and 155.27 and S.D regard is 11.37 & 11.8. Along these lines, the mean score of Govt. aided school students is practically comparable the Private school students. Standard deviation regard shows that both the groups are homogeneous. As such, the Govt. aided school students and Private school students have same attitude towards maths. The decided t-score is 0.6643. This t-score is lesser than the table value 1.96. Hence, there is no significance different between govt. in addition, private school students' attitude towards maths. **So, the null hypothesis is accepted**



Graphical representation of govt. aided and private secondary school students' attitude towards mathematics

**Testing of Hypothesis-04**

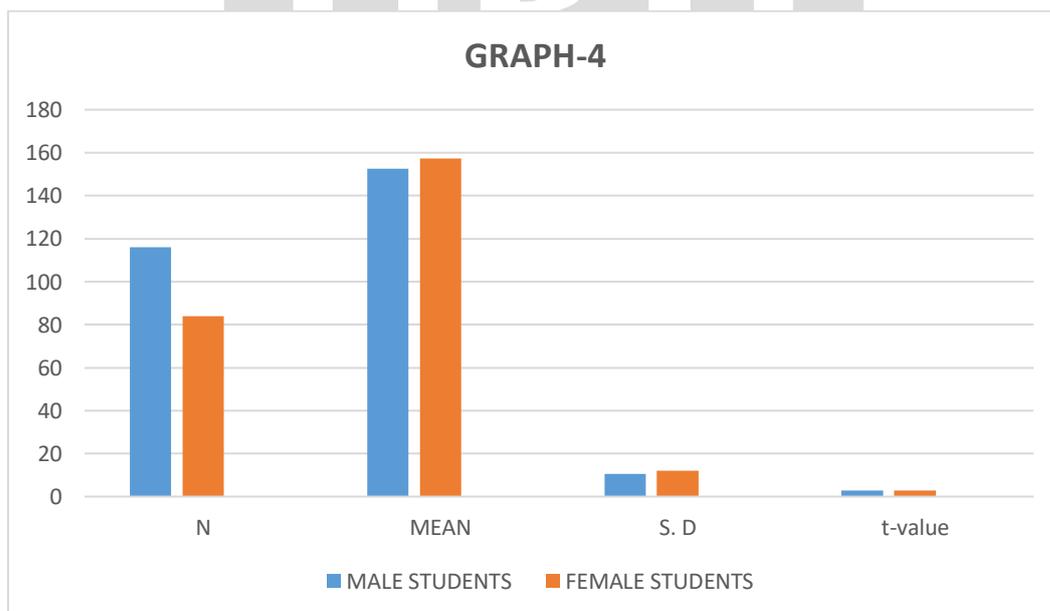
There is no significance different between male and female secondary school students' attitude towards mathematics.

**Table 4**

GENDER	N	Mean	S.D	t-value	Significant level
MALE	116	155.45	10.64	2.9364	Significant at 0.05 level
FEMALE	84	157.18	12.03		

Distribution of Male & Female Secondary School Students Attitude towards Mathematics

Table 4 uncovered that the mean score of male and female school students' attitude towards maths is 155.45 and 157.18 and S.D regard is 10.64 & 12.03. Along these lines, the mean score of male students isn't vary from female students. Standard deviation regard shows that both the group is heterogeneous. Subsequently, the female students have a best demeanor towards maths over that of male students. This t-value (2.9364) is greater than the table value 1.96. Therefore, there is significance different among male and female students' attitude towards maths received. **So, the null hypothesis is rejected.**



Graphical representation of male and female secondary school students' attitude towards mathematics

**Testing of Hypothesis-05**

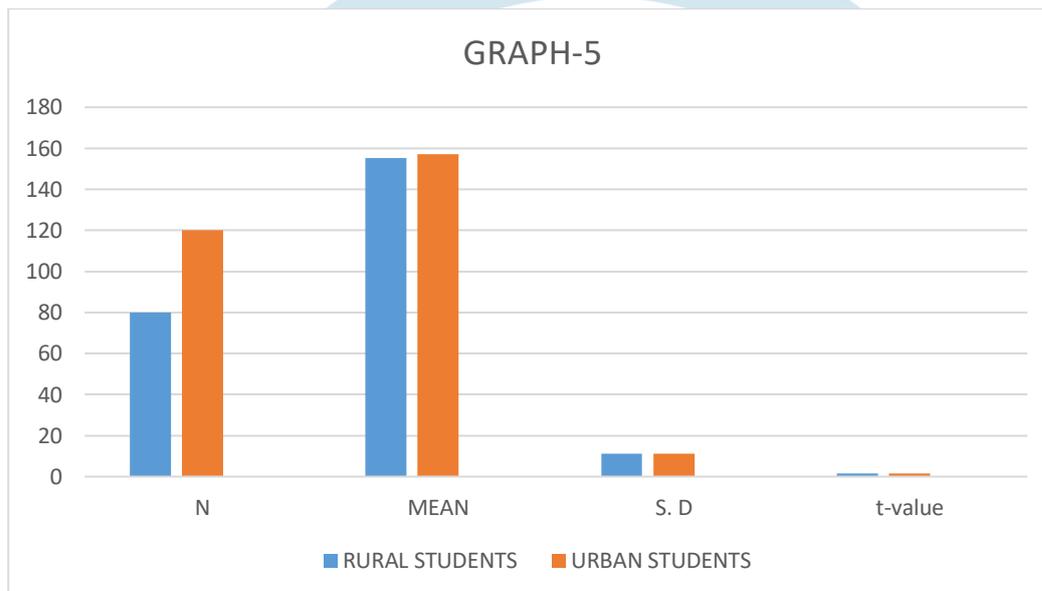
There is no significance different between rural and urban secondary school students' attitude towards mathematics.

**Table 5**

LOCATION	N	Mean	S. D	t-value	Significant level
RURAL	80	155.16	11.18	0.4586	Not Significant at 0.05 level
URBAN	120	157.52	11.23		

**Distribution of Rural & Urban Secondary School Students Attitude towards Mathematics**

Table 5 uncovered that the mean values of rural and urban school student's mentality towards maths is 155.16 and 157.52 and S.D esteem is 11.18 & 11.23. In this way, the mean values of rural students are almost equivalent to the urban students. Standard deviation esteem shows that both are homogeneous. Subsequently, the rural students and urban student's disposition towards maths don't have a doubt. This t-value (0.4586) is lesser than the table worth 1.96. Hence, there is no importance different among rural and urban school students' disposition towards math received. **So, the null hypothesis is accepted.**



**Graphical representation of rural and urban secondary school students' attitude towards mathematics**

#### Testing of Hypothesis-06

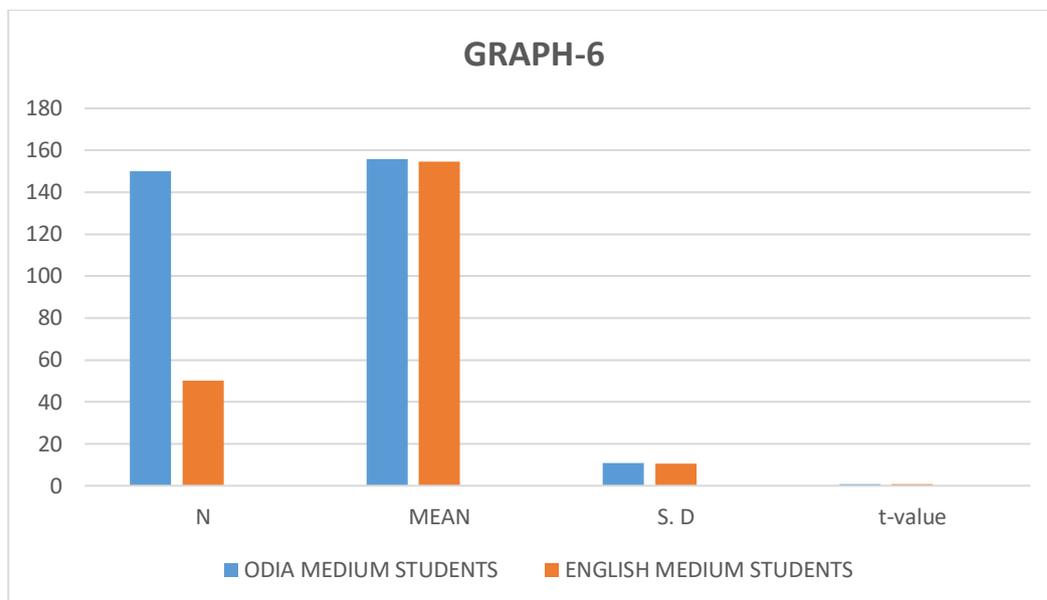
There is no significance different between Odia medium and English medium secondary school students' attitude towards mathematics.

**Table 6**

MEDIUM	N	Mean	S.D	t-value	Significant level
ODIA	150	155.78	10.67	0.7724	Not Significant at 0.05 level
ENGLISH	50	154.44	10.48		

**Distribution of Odia & English medium Secondary School Students Attitude towards Mathematics**

Table 6 shows that the mean score of Odia and English medium school students' attitude towards maths is 155.78 and 154.44 and S.D regard is 10.67 & 10.48. Along these lines, the mean values of Odia medium school students are practically identical to the English medium school students. Standard deviation regard shows that both the group is homogeneous. Consequently, the Odia medium school students and English medium school students' disposition towards maths don't indeed. The t-score (0.7724) is lesser than the table score 1.96. As such, there is no significance different between Odia medium and English medium helper school students' disposition towards math. **So, the null hypothesis is accepted.**



**Graphical representation of Odia medium and English medium secondary school students' attitude towards mathematics**

### Conclusion

After scanning the information from essential sources it was found that most students had elevating uplifting outlook towards maths at grade IX however they need to dealing with such countless issues because of which they couldn't get passing mark in maths. But a few students had uplifting outlook towards maths. It is additionally found that student at certainty level, their nervousness towards maths in absence of capable and qualified guardian; home and school environment; social factors; social culture is seemed students demeanor towards math. Accordingly, this reasoned that administration ought to give helping materials to all schools and should give preparing to educator and guardian ought to give additional opportunity to their kids for training in home. Likewise they ought to communicate with maths educator and guideline to know student cooperation in study and learning. Additionally society ought to change their way of behaving towards kids and be have similarly to all youngsters. Along these lines, viewpoints towards Mathematics can be made through enabling students and convincing them for learning through constructivism and improvements. Teachers, school environment and home environment should be useful and shouldn't hamper students' mathematical presentation all through their tutoring.

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