CHAPTER-II
REVIEW OF RELATED LITERATURE

CHAPTER-II

REVIEW OF RELATED LITERATURE

2.0.0 INTRODUCTION

Review of related literature is a crucial part of any academic research as it gives the required theoretical background and context to the current study. It assists the researcher in knowing what has been researched before in the field of focus and what gaps there are that need filling. For this research, the review for which deals with the level of achievement in mathematics among Class IX tribal students of Koraput district, the review includes a variety of literature such as learning and achievement theories, research on mathematics education, and research on tribal education in India.

Math achievement has been extensively researched in educational sciences because of its importance in the development of logical and analytical reasoning skills. Scholars have investigated the cognitive, affective, and socio-economic influences on the academic performance of students in various areas of mathematics. Apart from this, national student assessment surveys and education reports have pointed to the persistent learning deficits of the Scheduled Tribes students.The tribal educational context, particularly in geographically distant regions such as Koraput in Odisha, presents distinct challenges that affect learning. These involve a lack of infrastructure, language, socio-cultural variation, and limited mathematics exposure through everyday life. Research has also identified the shortcomings of pedagogy and the lack of culturally responsive pedagogy in tribal areas.

This chapter summarizes the current literature in these fields in order to construct a conceptual framework for the study, establish its relevance, and identify the gap it aims to address in mathematics education among tribal students. The review of literature has been conducted on the following topics e.g.

1. Studies on student achievement in mathematics
2. Studies conducted on Academic Achievement
3. Studies conducted on Tribal student

2.1.0 STUDIES ON STUDENT ACHIEVEMENT IN MATHEMATICS

There have been several studies on students' achievement in mathematics. In the following brief reviews, studies on students' achievement in mathematics have been presented.

Reddy, D.K. (2008). *Effectiveness of Teaching Methods on Mathematics Achievement.* This research examined the impact of teaching methods on students' mathematics achievement. The **objectives** of the study is to assess how different instructional strategies affect students' performance in mathematics. And the **findings**

of the study that interactive and student-centred teaching methods significantly improved students' understanding and achievement in mathematics compared to traditional lecture-based approaches.

Dhall et al. (2009). presented a study around intelligence as related to self-confidence and academic achievement of school students. The objective of the study was to explore the relationship between intelligence and academic achievement among secondary school students by taking a sample of 1000 students and found that there was a significant relationship between academic achievement and intelligence of secondary school students, there existed a significant difference between boys and girls of secondary school in terms of intelligence; there existed a significant difference between boys and girls of secondary school in terms of academic achievement.

Saha (2007). presented a study that delved around academic achievement in Mathematics in relation to cognitive styles and attitude towards Mathematics. Results showed that the boys and girls differed significantly on all the three measures under consideration. It was observed during the analysis that the field-independent boys as well as girls had excelled over the field-dependent boys and girls significantly in their achievement in Mathematics.

Saenz, M. B., Nandakumar, V., & Adamuti-Trache, M. (2023). *A Comparative Study of High School Students' Math Achievement and Attitudes: Do Math Teacher Qualifications Matter?* This study explores how math teacher qualifications affect ninth-grade students' math achievement and attitudes in the United States. The **objectives** of this study is to assess the impact of teacher credentials, including degree type and certification, on students' math performance and their attitudes toward mathematics. And the result **findings** are the research found that teacher qualifications significantly influenced student math achievement and math identity. Teachers with math degrees positively affected students' performance and self-perception in mathematics, while those with education degrees had some positive effects on students' interest in math courses.

Neha Khaiwal, Satyendra Gupta (2023). *Relationship Between Attitude Towards Mathematics and Academic Achievement of Eleventh-Class Students*. This study investigates the relationship between students' attitudes toward mathematics and their academic performance, focusing on gender-based differences. The **objectives** of the study is to explore how attitudes toward mathematics correlate with academic achievement among eleventh-grade students and to examine potential gender-based impacts. And the final **findings** are the research revealed a significant positive correlation ($r = 0.273$, $p = 0.006$) between students' attitudes toward mathematics and their academic achievement. This suggests that a more positive attitude towards mathematics is associated with higher academic performance.

Onoshakpokaiye, E. (2015). *Relationship of Study Habits with Mathematics Achievement. Journal of Education and Practice*. The **objective** is to investigate the relationship between students' study habits and their achievement in mathematics. And

the major **findings** are the study revealed a significant positive correlation between students' study habits and their mathematics achievement. Students exhibiting good study habits performed better in mathematics compared to those with poor study habits.

Raju, S. (2010). *Self-Concept and Mathematics Achievement among Secondary School Students.* This research analysed the impact of students' self-concept on their academic achievement in mathematics. To determine the relationship between students' self-perception and their performance in mathematics. ***Findings*** the study revealed that a positive self-concept was associated with higher achievement in mathematics, suggesting that boosting students' confidence could enhance their academic outcomes.

Panigrahi (2005) studied academic achievement in relation to intelligence and the socio-economic status of high school students. The study was conducted with an objective to examine the influence of intelligence and socio-economic status on academic achievement of high school students by taking a sample of 100 students from Bhubaneswar city of Orissa and found that there was a significant and positive correlation between academic achievement and intelligence; high intelligence leads to better academic success; a low positive correlation between academic achievement and socioeconomic status; there was no significant difference between boys and girls with respect to academic achievement.

Srinivasan, P.K., & Arivudayappam, P. (2004). *Attitude towards Mathematics and Academic Achievement.* This study explored the relationship between students' attitudes toward mathematics and their academic achievement. To determine how students' attitudes toward mathematics influence their academic performance. The study found a significant positive correlation between positive attitudes toward mathematics and higher academic achievement, suggesting that fostering a positive attitude can enhance performance.

Diseth (2003) compared intelligence and academic achievement of adolescent boys and girls of IX and XI class. It was ***found*** that among students of class XI, no significant difference was observed between the academic achievement of intellectually superior and intellectually very superior boys and girls. But, intellectually, the academic achievement of girls was superior to that of boys. In general, the intelligence test scores of boys were very higher than those for the girls; in the case of boys, there was a very high correlation between intelligence test scores and academic achievement whereas in the case of girls there was an average correlation.

Aswal (2001) examined the relationship among intelligence, achievement in Mathematics with different levels of socioeconomic status. The sample comprised randomly selected two hundred students of class XI from five colleges of Tehri district. Data were collected using a group test developed by Jalota and Singh to measure general mental ability and SES Scale developed by Pareek and Trivedi. The ***findings***

show that there was a significant correlation between intelligence and achievement in Mathematics, Relation between intelligence and achievement in Mathematics may vary across different levels of socioeconomic levels as three colleges reflected significant differences among different levels of SES out of living colleges in intelligence and Achievement in Mathematics.

Padmini, D. (2010). *Parental Involvement and Mathematics Achievement*. This study focused on the influence of parental involvement on students' mathematics performance. To examine how parental support and engagement affect students' achievement in mathematics. The study ***findings*** that students with active parental involvement in their studies tended to perform better in mathematics, highlighting the role of family support in academic success.

2.2.0 STUDIES CONDUCTED ON ACADEMIC ACHIEVEMENT

There have been several studies on students' Academic Achievement. In the following brief reviews, studies Academic Achievement have been presented.

Shikhatyagi, (2014), *Influence of Psycho-Social Factors on the Academic Achievements of Students,* worked on Achievement motivation, learning style, parental involvement as correlates of academic achievement of the secondary school students. They studied a total 600 students and found that parental involvement and learning style was positively correlated with academic achievement while compared to rural students, urban students were on a higher level of academic achievement. Learning style is the only variable that has direct impact on achievement motivation, parental involvement and academic achievement. This finding implies that parents and educators can improve the learning style of students through appropriate manipulation of their involvement and environment at home and school.

Vinitha G, (2016) conducted a study on Cognitive Strategies Influencing Academic Achievement of Higher Secondary School Students. The purpose of the study was to determine metacognitive awareness, learning style choice, and academic accomplishment of Coimbatore district higher secondary school students. A total of 1005 students from higher secondary schools were included in the study. The investigation was conducted using a survey approach. Data was collected using Schraw and Dennison's instrument for metacognitive awareness and a self-created tool for learning style preference. According to correlation research, there was a relationship between control of cognition and its subcomponent appraisal and students' academic success. Male students have greater metacognitive capacity than female students, and it's also worth noting that students who read the newspaper on a daily basis have superior cognition and can better manage their cognition.

S. Kaur and K. Grewal, (2021) conducted a study Academic Achievement Of 10th Class Students in Relation to Their Attitude Towards Schooling. The current study looked at the link between academic achievement and students' attitudes toward schooling in 10th grade. To fulfil the study's goal, 100 pupils from the Ludhiana district of Punjab were selected using a stratified random sample approach. Academic

Achievement and Attitudes about Schooling for Adolescents were created by Chopra using percentages of prior class marks from the 9th grade exams (2014). The data were analysed using statistical approaches such as the Coefficient of Correlation. The findings revealed that there is no significant association between adolescent academic achievement and attitude toward schooling, however there is a substantial relationship between adolescent academic achievement and school type. Additionally, there is a considerable link between adolescent academic achievement and type of school.

Daniel H. Caro, (2009), *The Role of Academic Achievement Growth in School Track Recommendations,* investigated Socio-economic Status and Academic Achievement Trajectories from Childhood to Adolescence. Although there is a definitive relationship between socioeconomic status and academic achievement, the extent to which it varies with age is unclear. This article examines how the academic success gap attributed to SES varies from childhood through adolescence using four data points from Canada's National Longitudinal Study of Children and Youth 2(ages 7 to 15). Estimates panel data analysis and hierarchical linear models show that the difference is relatively steady between the ages of 7 and 11, but grows at a faster rate between the ages of 11 and 15. This finding's theoretical arguments and policy implications are examined. (Meijs et al., 2010) conducted a study on Social Intelligence and Academic Achievement as Predictors of Adolescent Popularity. This study evaluated the impact of social intelligence and cognitive intelligence on teenage popularity in two school settings, as judged by academic success. The difference between sociometry popularity, which is a measure of acceptability, and perceived popularity, which is a measure of social dominance, was made. 512 14-15- year-old adolescents (56 percent females, 44 percent boys) from vocational and college preparation schools in North-western Europe took part in the study. In all instances, perceived popularity was connected to social intelligence but not to academic success. Academic success and social intelligence interacted to predict sociometric popularity, which was further qualified by school setting. Whereas college-bound students earned sociometric popularity by succeeding both socially and intellectually, vocational students gained popularity by excelling either socially or academically, but not both at the same time.

Muhammad et al., (2013), *A Comparative Study of Adjustment and Academic Achievement of College Students*, conducted a study on Parental Involvement and Academic Achievement: A Study on Senior Secondary Students. The present paper intended to study the effect of parental involvement on academic achievement of senior secondary students in terms of gender and locality. 200 students were selected randomly from the senior secondary schools of Jammu tehsil. The tool for collecting data was parental involvement scale developed by Vijaya Laxmi Chauhan & Gunjan Ganotra Arora (2008) and for assessing academic achievement the result of the previous exams i.e. class 11 was considered. The ***findings*** of the study brought out that there was a significant positive correlation between parental involvement and academic performance of rural and urban high school students.

Uddin, (2011), *Parental Warmth and Academic Achievement of Adolescent Children,* conducted a study on Parental Warmth and Academic Achievement of Adolescent Children. The purpose of this study was to see if there was a link between parental acceptance and adolescent children's academic achievement. The original Parental Rejection/Acceptance Control Questionnaires were adapted to the Bangla language in both mother and father versions. The questionnaires, together with a Personal Information Form, were given to 300 children in grades 7, 8, and 9 from four schools in Dhaka, the capital city. Pearson product moment correlations were used to analyse the data. The ***findings*** demonstrated that both mother and paternal warmth were linked to children's academic success. The findings have been evaluated in light of previous research.

2.3.0 STUDIES CONDUCTED ON TRIBAL STUDENT

There have been several studies on Tribal Students'. In the following brief reviews, studies on Tribal Students' have been presented.

Priti Chaudhari, (2010), *The Academic Achievement of Tribal Students of Ashram Schools of Surat District*, investigated on The Academic Achievement of Tribal Students of Ashram Schools of Surat District. Education has a restricted meaning in the Indian educational system. It is primarily concerned with existing formal educational organisations and institutionalised methods of delivering knowledge to individuals. There are several subgroups of people with particular needs inside this system, and tribal people are one of them. The government of India has a significant challenge ahead of them in terms of tribal education. Residential schools, often known as Ashram schools in India, are one unique education input for tribal education. These institutions represent one-of-a-kind efforts in the area of indigenous education. The research of the current state of education in ashram schools will provide empirical data on the state of Tribal education in these institutions. Such information also aids in the evaluation of indigenous education programmes. It would be interesting to learn about the academic achievements of indigenous pupils at ashram schools from this perspective. ***Findings*** of this study Academic achievement of tribal kids in Surat district's Ashram Schools was found to be average in Gujarati Hindi, Social Science and Mathematics, but below average in English and Science and Technology. As a result, it was necessary to investigate the reasons behind their disparities in academic performance across topics. The state and quality of inputs, as well as the running of schools with a substantial ST population, are not promising, according to the research. At addition, the quality of education in ashram schools must be improved.

Andrabi (2016) explored the academic achievement of tribal and non-tribal adolescent students in secondary schools of the Kashmir division. The sample was comprised of 564 students randomly selected from three secondary schools. Academic achievement was obtained from the school records of the sample students. Gender-wise and category-wise comparisons were done using mean, S.D., and independent samples t-tests. Results showed that tribal and non-tribal adolescents differ significantly on the measure of academic

achievement at 0.001 level. ***Findings*** of this study non-tribal adolescents were found to have a higher level of academic achievement than tribal students. The study also revealed that there is no significant difference between male and female adolescents on the measure of academic achievement.

Dr. M.S. Talawar Mrs. Anindita Das (2014), *A Study of Educational Development of Tribal Women of Jammu and Kashmir*, conducted A Study of Relationship Between Academic Achievement and Mental Health of Secondary School Tribal Students of Assam. The purpose of this study was to look at secondary school tribal students' academic achievement in connection to their mental health. The researcher chose 200 secondary school pupils who were diverse in terms of gender and location. Mercy Abraham and K.C. Baby Prasanna's mental health scale was utilised as a tool, and scholastic success scores were collected from school. The association was discovered using Pearson's product moment correlation, and the significance of differences between variables was determined using the t' test. According to the **findings**, there is a link between academic success and mental health among Assam's secondary school tribal pupils. The study also discovered that there is a substantial disparity between boys' and girls' mental health, urban and rural secondary school tribal students of Assam.

Kumari (2019). A study of academic achievement among tribal and non-tribal adolescents of secondary schools in the Kashmir division, and reported a significant difference in the academic achievement of tribal and non-tribal students. Non-tribal adolescents were **found** to have a higher level of academic achievement than tribal students. Significant differences were also found between male and female adolescents in their academic achievements

Dr. Charlotte Regena John, Prof. B.G. Singh, (2014) Research, *A Study of Achievement in English of Tribal Students: Comparison of Determinants,* explores effect of personality and emotional intelligence on academic achievement of tribal students. Results imply friendliness, interpersonal management, decisiveness, emotional stability, masculinity, heterosexuality, dominance as important predictors in achievement. Tribal take longer time to unfold their abilities as they are deprived of opportunities this may result in intellectual deficiency. Understanding of the role of personality enables teachers to ensure academic success.

Azad Ahmad Andrabi, (2018), *Development of Education of Scheduled Tribes in Jammu and Kashmir*, conducted A Study of Academic Achievement Among Tribal and Non-Tribal adolescents of Kashmir. This study looked at the academic achievement of tribal and non-tribal adolescent students in Kashmir division secondary schools. A total of 564 students were chosen at random from three secondary schools for the study. Academic achievement was determined using the sample students' school records. Mean, S.D., and independent samples t-tests were used to compare gender and category differences. At the 0.001 level, the results

demonstrated that tribal and non-tribal adolescents differ significantly on a measure of academic achievement. Academic achievement was shown to be higher among non-tribal adolescents than among tribal students. The study also found that there is no statistically significant difference between male and female adolescents on the measure of academic achievement.

Gadatia & Mohalik, (2016), *Home Grown Development: The Education of Tribal Peoples*, conducted a study on Life skills need assessment among tribal students at secondary level. The purpose of this study was to look at the life skills training needs of tribal students in secondary school. CSI Tribal School, Gudallur, used the survey technique with a sample of 88 secondary tribal students and 22 instructors. Data was collected using a self-developed life skill need assessment check list for students and a self-developed life skill need assessment check list for instructors. Frequency and percentage were used to analyse the data. The majority of student and instructor replies suggested that tribal pupils needed life skills education, particularly in areas like as self-awareness, effective communication, interpersonal relationships, and so on. The findings of this study have clear consequences for parents, teachers, and counsellors when it comes to planning, organising, and implementing life skills education in tribal communities.

Karyn Paringatai, (2016), *Home Grown Development: The Education of Tribal Peoples,* studied Māori identity development outside of tribal environments. Participation and adherence to a shared belief system, knowledge of ancestry, geographical location, and associated historical facts all contribute to ethnic identity formation. Mori epistemological systems were upset by the arrival of Europeans in New Zealand and the changes that ensued. The relevance of Mori language and culture to Mori people was influenced by sustained, protracted, and regular contact with other nationalities. Before going into ethnic identity, this article examines the elements that influence identity development. This will be followed by a discussion of these aspects in connection to the formation of a Mori identity. It will conclude by looking at some of the consequences of growing up away from tribal regions on the development of first-generation urban Mori born in Southland, based on study conducted with first-generation urban Mori born in Southland.