Mathematics of Non-SC students are 70.96. Standard Deviation of Achievement in Mathematics is 16.21. Standard Deviation of Achievement in Mathematics is 20.73. Further, more than 50% students secured above 75% marks. 25% students scored more than 83.25% marks in mathematics. 10% of students scored more than 90% marks in mathematics. 5% of students scored more than 95% marks in mathematics. It indicates that On average, Non-SC students scored 6.68 percentage points higher than SC students in mathematics. This suggests that Non-SC students have a better overall grasp of the subject matter. The higher standard deviation among SC students indicates greater variability in scores, suggesting that performance among SC students is more uneven — with some students doing very well, while others perform poorly. Non-SC students, on the other hand, show a more consistent performance. The median score clearly shows that 50% of Non-SC students scored above 75%, while only 50% of SC students scored above 66.5%. This 8.5 percentage point gap in the median score reflects systemic performance differences. At higher performance levels (75th, 90th, and 95th percentiles), the gap narrows, indicating that some SC students are performing quite well. However, fewer SC students reach the highest performance compared to their Non-SC peers.

Finding: Achievement in mathematics among Non-SC students is higher on average, more consistent, and with a stronger middle-performing group. SC students show a wider spread in performance, with a significant proportion scoring lower than their Non-SC peers, though some individuals still reach high levels of performance.

4.3.0 IDENTIFICATION OF FACTORS INFLUENCING ACHIEVEMENT IN MATHEMATICS

The second objective of the present research was to identify the factors influencing the achievement in mathematics of class VIII students, such as, socio-economic status, school infrastructure, quality of teaching, and parental occupation. In order to identify the factors influencing achievement in Mathematics, the researcher developed a questionnaire that had two factors, namely, socio-economic status and parental occupation. The questionnaire was administered to 200 students of class VIII. The data related to other two factors, namely, school infrastructure and quality of teaching, were collected from the teachers through the questionnaire developed by the researcher. The data related to SES and Parental Occupation were analysed with the help of Mean and SD. The data related to school infrastructure and quality of teaching were analysed with the help of percentages. The results related to each of these factors are presented below, under captions 4.3.1 – 4.3.4.

4.3.1 Socio-Economic Status

In order to study the influence of Socio-economic Status(SES) on achievement in mathematics, the researcher categorised the SES into five categories. These were Below ₹5,000, ₹5,001 – ₹10,000, ₹10,001 – ₹20,000, ₹20,001 – ₹50,000 and 50000 Above. The results are presented in Table 4.2, below.

Table 4.2: Mean and SD of Achievement in Mathematics of SC and Non-SC students as per the SES

SES	SC (N)	MEAN	SD	NON-SC (N)	MEAN	SD	TN
Below ₹5,000	14	45.21	9.02	24	47.29	5.57	38
₹5,001 – ₹10,000	7	58.71	12.52	29	60.65	7.63	36
₹10,001 – ₹20,000	5	61.2	19.58	43	74.60	6.24	48
₹20,001 – ₹50,000	18	77.33	12.79	20	81.3	11.30	38
50000 Above	16	69.68	26.01	24	91.95	3.64	40

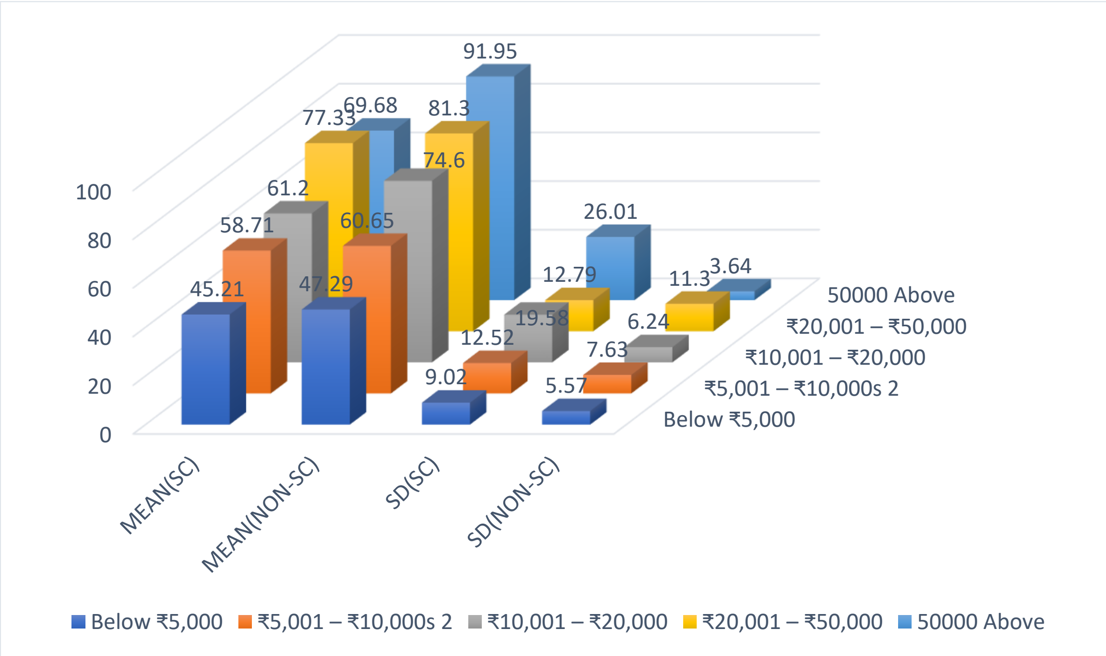

Fig. - 4.1: Mean and SD of Achievement in Mathematics of SC and Non-SC students as per the SES

Table 4.2 demonstrates that the mean score for Mathematics scores in relation to economic status of SCs and Non-SC students below ₹5,000 are 45.21 and 47.29, respectively. The Standard deviation of Mathematics scores in relation to economic status of fluency of SCs and Non-SC students below ₹5,000 are 9.02 and 5.57, respectively. Students from both categories with very low income have the lowest average scores. However, Non-SC students slightly outperform SC students. The smaller standard deviation among Non-SC students suggests more uniform performance, while SC students show slightly more fluctuation. The mean scores for Mathematics in relation to the economic status of SC and Non-SC students from families earning ₹5,001 – ₹10,000 are 58.71 and 60.65, respectively. The standard deviations of their Mathematics scores are 12.52 for SC students and 7.63 for Non-SC students. With a moderate rise in income, the mean scores also improve for both groups. Non-SC students again perform slightly better, and their scores are more consistent. The gap in performance remains present but is narrower. The mean scores for Mathematics in relation to the economic status of SC and Non-SC students from families earning ₹10,001 – ₹20,000 are 61.20 and 74.60, respectively. The standard deviations of their Mathematics scores are 19.58 for SC students and 6.24 for Non-SC students. The performance gap widens significantly in this income group. Non-SC students show a sharp increase in average scores, while SC students improve only slightly. The high standard deviation for SC students indicates a wide variation in performance levels, possibly due to unequal access to resources even within the same income band. The mean scores for Mathematics in relation to the economic status of SC and Non-SC students from families earning ₹20,001 – ₹50,000 are 77.33 and 81.30, respectively. The standard deviations of their Mathematics scores are 12.79 for SC students and 11.30 for Non-SC students. Achievement levels are substantially higher in this income category for both groups. The performance gap begins to narrow, suggesting that access to better home resources and support systems positively impacts both SC and Non-SC students. However, Non-SC students still maintain a higher mean score. The mean scores for Mathematics in relation to the economic status of SC and Non-SC students from families earning above ₹50,000 are 69.68 and 91.95, respectively. The standard deviations of their Mathematics scores are 26.01 for SC students and 3.64 for Non-SC students. This group shows the most dramatic gap. Non-SC students achieve near-perfect consistency and very high average scores, while SC students, despite higher income, show lower average scores and the highest variability. This indicates that economic improvement alone may not fully bridge the achievement gap, as social or institutional factors might still affect SC students despite financial upliftment.

Finding: Income positively correlates with mathematics achievement for both SC and Non-SC students. Non-SC students consistently outperform SC students across all income levels. Even at higher income levels, SC students' performance is not proportionally aligned with their Non-SC counterparts. Standard deviation patterns reveal that Non-SC students show more consistent performance, especially in higher-income brackets.

It indicates that performance in mathematics is influenced by SES factor.

4.3.2 Parental Occupation

In order to study the influence of Parental Occupation on achievement in mathematics, the researcher categorised the parental occupation into five categories. These were Agriculture, Daily Wages Earner, Government Job, Private Sector Job and Business. The results are presented in Table- 4.2, below.

Table 4.3 Mean and SD of Achievement in Mathematics of SC and Non-SC students as per the Parental occupation

Occupation	SC (N)	MEAN	SD	NON-SC (N)	MEAN	SD	TN
Agriculture	10	57.3	11.59	16	60.18	15.06	26
Daily Wages Earner	11	50.63	18.14	34	60.58	16.30	45
Government Job	15	73.86	20.58	25	79.44	17.61	40
Private Sector Job	12	71.25	19.38	27	76.40	8.33	39
Business	12	63.66	23.91	38	75.34	13.00	50

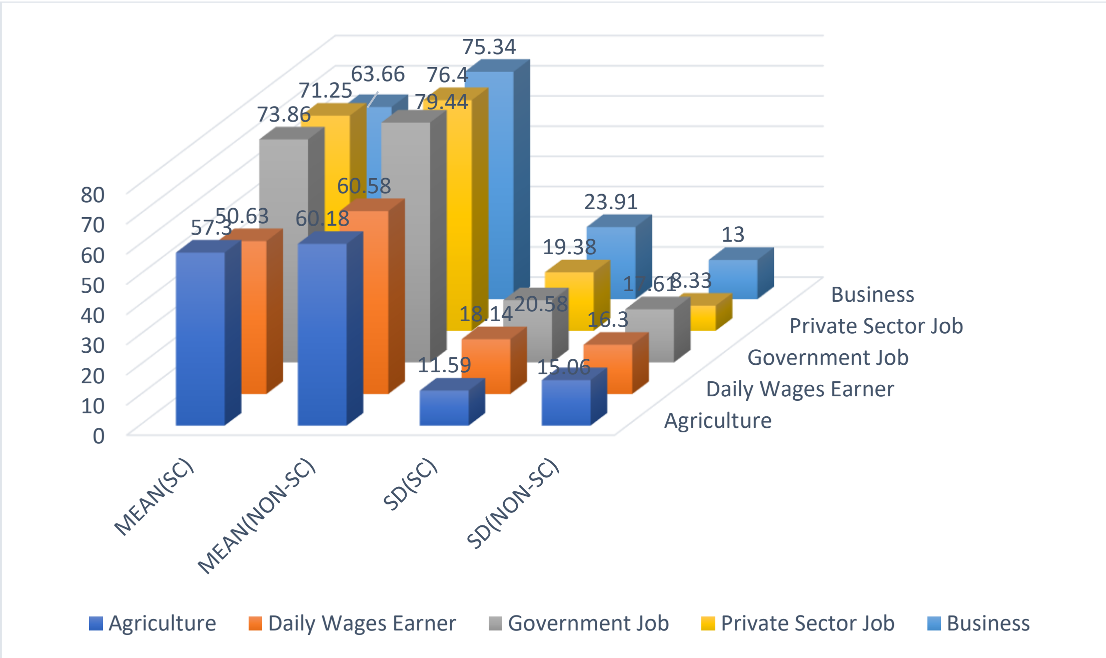

Fig. - 4.2: Mean and SD of Achievement in Mathematics of SC and Non-SC students as per the Parental occupation

Table - 4.3 shows that the mean scores for Mathematics in relation to the occupational status of SC and Non-SC students from families engaged in agriculture are 57.3 and 60.18, respectively. The standard deviations of their Mathematics scores are 11.59 for SC students and 15.06 for Non-SC students. Students from agricultural families show moderate performance in mathematics. Non-SC students score slightly higher on average than SC students. The wider standard deviation among Non-SC students suggests greater variability, while SC students' performance is relatively more clustered. The mean scores for Mathematics in relation to the occupational status of SC and

Non-SC students from families of daily wage earners are 50.63 and 60.58, respectively. The standard deviations of their Mathematics scores are 18.14 for SC students and 16.30 for Non-SC students. Among families relying on daily wage earnings, both groups show lower achievement, especially SC students. The gap of nearly 10 percentage points indicates that SC students in this group face additional educational disadvantages. The high standard deviation reflects inconsistent performance within both groups, likely due to instability and limited academic support at home. The mean scores for Mathematics in relation to the occupational status of SC and Non-SC students from families working in government jobs are 73.86 and -79.44, respectively. The standard deviations of their Mathematics scores are 20.58 for SC students and 17.61 for Non-SC students. Students from families employed in government jobs perform well in mathematics. Both SC and Non-SC students benefit from stable, educated backgrounds. The performance gap remains but narrows slightly. However, SC students still show more variability, suggesting that consistent academic advantages are not uniformly accessible even within this group. The mean scores for Mathematics in relation to the occupational status of SC and Non-SC students from families employed in the private sector are 71.25 and 76.40, respectively. The standard deviations of their Mathematics scores are 19.38 for SC students and 8.33 for Non-SC students. Private sector employment supports relatively good academic achievement for both groups. The smaller standard deviation among Non-SC students indicates more consistent performance, while SC students' wider range of scores suggests unequal access to learning resources or academic support despite similar economic standing. The mean scores for Mathematics in relation to the occupational status of SC and Non-SC students from families engaged in business are 63.66 and 75.34, respectively. The standard deviations of their Mathematics scores are 23.91 for SC students and 13.00 for Non-SC students. Students from business families show a large gap in achievement, with Non-SC students significantly outperforming their SC counterparts. The very high standard deviation for SC students indicates inconsistent academic support or varied levels of parental involvement. This suggests that occupation type alone does not guarantee equitable educational outcomes.

Finding: Parental occupation shows a clear relationship with students' mathematics achievement across both SC and Non-SC groups. Non-SC students consistently outperform SC students within every occupational category, whether the parents are in agriculture, daily wage work, government service, private sector, or business. Even in occupations that typically offer better economic stability—such as government jobs, private sector employment, or business—SC students do not perform on par with their Non-SC peers. This reflects the existence of systemic barriers beyond occupation, such as limited access to quality schooling, social bias, and unequal academic support. Standard deviation trends indicate that Non-SC students generally display more consistent academic performance across all occupations, while SC students show greater variability, especially in higher-status occupations, highlighting the uneven distribution of educational opportunities even among those with similar occupational backgrounds.

Performance in mathematics is influenced by the parental occupation factor.

4.3.3 School Infrastructure

In order to study the influence of school infrastructure on mathematics teaching and learning, the researcher included six specific indicators in the Questionnaire, i.e., Teachers' Perceptions of School Infrastructure Supporting Mathematics Teaching. These indicators were: (1) Use of technological tools during mathematics lessons, (2) Perception of overall school infrastructure support, (3) Availability of adequate teaching materials, (4) Provision of extracurricular programs to support mathematics, (5) Equity in resource allocation between rural and urban schools, and (6) Classroom observations or feedback mechanisms for improving teaching practices. The responses of teachers across these categories are presented in **Table 4.4**, below.

The table 4.4 shows the responses related to the questions included in the Teachers' Perceptions of School Infrastructure Supporting Mathematics Teaching. Item-wise/Question-wise analysis of the responses are presented, below:

Table 4.4: Percentage Distribution of Teachers' Perceptions of School Infrastructure Supporting Mathematics Teaching

QUESTIONNAIRE	% OF STRONGLY AGREE	% OF AGREE	% OF NEUTRAL	% OF DISAGREE	% OF STRONGLY DISAGREE
Are technological tools like graphing calculators or educational software used during your math lessons?	-	27.27	36.36	22.73	13.64
Do you believe the school's infrastructure supports effective mathematics teaching?	22.73	59.09	13.64	4.55	-
Are adequate teaching materials available to support math instruction?	22.73	40.91	13.64	-	22.73
Are there adequate extracurricular programs or support systems to enhance mathematical learning?	-	27.27	36.36	27.27	9.09
Do you feel there is equitable resource allocation for schools in rural and urban areas?	-	27.27	36.36	27.27	9.09
Are classroom observations or feedback mechanisms in place to improve teaching practices?	4.55	40.91	40.91	9.09	4.55

Item No. 1: "Are technological tools like graphing calculators or educational software used during your math lessons?"

Results show that 27.27%, 36.36%, 22.73%, and 13.64% agree, neutral, disagree and strongly disagree, respectively. In other words, only about a quarter of respondents (27.27%) felt such tools were used in math classes, while over one-third (36.36%) are uncertain. A combined 36.37% (22.73% disagree + 13.64% strongly disagree) indicate they do not see these tools in use. The absence of any strong agreement and the sizeable neutral/disagree proportions suggest that integration of technology in math lessons is limited. Many respondents appear unsure or negative about the availability of graphing calculators or educational software, implying that such resources may not be widely implemented or recognized in their schools.

Item No. 2: "Do you believe the school's infrastructure supports effective mathematics teaching?"

Results show that 22.73%, 59.09%, 13.64%, and 4.55% strongly agree, agree, are neutral, and disagree, respectively. No participants strongly disagreed. In total, 81.82% of respondents hold a positive view that the infrastructure supports mathematics instruction. This indicates general confidence in the availability of physical facilities such as classrooms, blackboards, and seating. The minimal disagreement suggests that only a few schools might have infrastructural shortcomings.

Item No. 3: "Are adequate teaching materials available to support math instruction?"

Results show that 22.73%, 40.91%, 13.64%, and 22.73% strongly agree, agree, are neutral, and strongly disagree, respectively. Interestingly, none of the respondents selected "disagree," pointing to a polarized perception. While a combined 63.64% of teachers feel that adequate materials are available, a significant 22.73% strongly disagree. This suggests that although some schools are well-equipped with resources such as textbooks and manipulatives, others are distinctly underserved, highlighting disparities in material distribution.

Item No. 4: "Are there adequate extracurricular programs or support systems to enhance mathematical learning?"

Results show that 27.27%, 36.36%, 27.27%, and 9.09% agree, are neutral, disagree, and strongly disagree, respectively. Only a quarter of teachers expressed agreement, while over one-third were neutral and another one-third disagreed. The absence of any "strongly agree" responses suggests that most schools lack sufficient extracurricular programs, such as math clubs or after-school support. The high percentage of neutrality indicates possible unawareness or inconsistency in program availability across schools.