REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

The review of the literature helps an investigator to get into the frontiers of knowledge that are related to his area of interest. Research workers must be aware of what is known with some degree of certainty what is accepted as truth by some and not by others, must have some inkling of the nature of unexposed areas where additional research should be conducted. The review involves locating, realizing and evaluating research reports as well as reports of observation and opinion that are related to the individuals planned research project. As such the investigator cannot have an insight into the problem to be investigated, unless and until he learnt what others have done and what remains to be done in a particular area of interest. Thus the related literature, besides forming one of the early chapters in the research report for orienting the readers, also serves some other purposes which are given by Good, Barr and Scates as follows:

a. To know whether the evidence already available solves the problem adequately without further investigation and thus to avoid the risk of duplication.

b. To provide idea, theories explanations or hypothesis valuable in formulating the problem.

c. To suggest methods of research appropriate to the problem.
d. To locate comparative data useful in the interpretation of results and
e. To contribute to the general scholarship of the investigator.

2.2 JUSTIFICATION OF LITERATURE

The researcher has tried to find out the needed studies in the area of Academic Achievement, School Inputs, and S-E-S and during his hunt for related literature. It was found that there was no study available which was parallel to the present study. All the studies had other different combination of variables or were taken at different levels and on different sample.

In the light of the importance attached to related literature, the investigator highlights briefly the significance of research in Secondary education and summarizes the relevant studies that have been conducted in this area.

Secondary education has received a global attention in the recent past. Secondary education is considered more than an end in itself. “It is the foundation for lifelong learning and human development on which countries builds systematically further level and types of education and training”. (Dave, 1971)\(^1\),

However, the research in this priority sector of education has mostly remained confined within the developed countries and especially in USA and U.K. till the nineteen sixties. As regard to developing countries and particularly in India, research in Secondary education in not providing a
A bibliography of research brought out by NCERT (Dave P.N. & Murthy, C.V.G. 1994)\(^2\) revealed that out of 1800 research abstracts only 54 studies were carried on Secondary education.

The investigator after scanning the available literature on the subject presented a few studies that pertain to the variables in question. The relevant studies are considered for the summary which has been classified as studies.

Studies related to academic achievement and school Inputs.

Studies related to achievement and school type.

Studies related to achievement and S-E-S.

### 2.3 STUDIES RELATED TO ACADEMIC ACHIEVEMENT AND SCHOOL INPUTS

Jishnu Das et. al. (2012)\(^3\) conducted the study on school inputs, household substitution, and test scores. They presented a dynamic household optimization model relating test scores to school and household inputs, and tested its predictions in two very different low-income country settings – Zambia and India. They measured household spending changes and student test score gains in response to unanticipated as well as anticipated changes in school funding. They found in both settings that households offset anticipated grants more than unanticipated grants and also unanticipated school grants lead to significant improvements in student test scores but anticipated grants have no impact on test scores. The results suggested that native estimates of public education spending on learning outcomes that do
not account for optimal household responses are likely to be considerably biased if used to estimate parameters of an education production function.

Cunningham et. al. (2011)\(^4\) has examined the importance of governmental investments in school infrastructure, school improvement grants, teachers, and pupil incentives for children’s test performance and age-appropriate grade in India. They combined two national datasets, one with district-level data on schools, and the other with population-based data on children. Governmental investments accounted for up to 6\% of the explained variation in achievement. Improvement grants given to schools and incentives given to pupils tended to have the strongest adjusted associations with test performance and grade progression. With higher investments, higher proportions of children may have basic literacy and numeracy skills and be in the age-appropriate grade. Large investments, like basic school buildings with multiple classrooms, and smaller investments, like stationery and uniforms for pupils were associated with higher achievement.

Yichun wei et al (2011)\(^5\) this study estimates the impact of schools’ physical resources and teachers’ academic press on students’ academic achievement in mathematics and reading when a number of important student variables are controlled. Academic press is defined as teachers’ emphasis on academic excellence and upholding academic standards. It is often argued that both school and teacher resources effect the educational achievement of students. But the research literature has been inconsistent which may be due to methodological issues. This study attempted to correct two of the most important issues by using Canadian national data and multi-level modeling.
The results revealed that, in Canada, at least the physical resources and academic press evaluated by school principals do not significantly affect student’s achievement in mathematics and reading.

Dahar et.al (2011) conducted a study to find out the impact of teacher quality on the academic achievement of students at secondary stage in Punjab. The study delimited its scope to the five indicators of teacher quality i.e. academic and professional qualification, in-service refresher courses/trainings, teacher experience and teacher salary. Population of the study comprised all secondary and higher secondary schools, secondary teachers and secondary students in Punjab. Overall, a total of 288 schools, then 20 students and 10 teachers from each school were randomly selected as the sample of the study. The study identified the teacher quality through a questionnaire for teachers. The longitudinal data of academic achievement in the form of aggregate marks of the annual examinations of the Classes VI, VII, & VIII as prior achievement and that of the Class X as academic achievement of the same students through “Result Sheet”. The data were summarized at school level and then analyzed collectively. Stepwise Regression analysis with linear function was used to find out the differential impact of teacher quality on the academic achievement. The study found that there no much difference in the quality of teachers of schools with higher academic achievement and that of the schools with lower academic achievement. The study found that these five indicators of teacher quality are not effective but instead the prior achievement is the most effective. The policy implication is that only the quantity of academic and professional degrees/certificates or trainings or years of service or amount of salary is not
important but it is the attitude of teachers towards teaching and the extent of the use of their skills, expertise and abilities in teaching that is important. Glewwe. et.al (2011)\textsuperscript{7} investigated the school resources & educational outcomes in developing countries. This paper examines studies published between 1990 and 2010, in both the education literature and the economics literature, to investigate which specific school and teacher characteristics, if any, appear to have strong positive impacts on learning and time in school. Starting with over 9,000 studies, 79 are selected as being of sufficient quality. Then an even higher bar is set in terms of econometric methods used, leaving 43 “high quality” studies.

Finally, results are also shown separately for 13 randomized trials. The overall findings are school resources play of vital role in upgrading educational outcomes.

Paulo et.al (2008)\textsuperscript{8} conducted a study on school resources and student achievement A range of teacher and school characteristics were examined. Two out of five teacher variables (teacher exam marks and teachers’ years of education) and two out of the three school variables had some positive impacts.

The resources’ impact is big enough to be educationally important. Other literature reviews at the time also tended to see a greater number of findings for, rather than against positive effects of school resources on student attainment. Study suggest the view that “the evidence – whether from aggregate school outcomes, econometric investigations, or a variety of experimental or quasi-experimental approaches – suggests that pure resource
policies that do not change incentives are unlikely to be effective” and “the general inefficiency of resource usage are unlikely to be overturned by new data, by new methodologies, or the like”, although he admits that “altered sets of incentives could dramatically improve the use of resources” (Hanushek, 2008)⁹.

Holmlund et.al (2008)¹⁰ attempted to study whether raising school expenditure improves educational outcomes. In the UK, school expenditure has increased by about 40 per cent in real terms since 2000. Thus, providing an answer to the question as to whether such spending has an impact on educational outcomes (and whether it is good use of public money) is of paramount importance. In this paper they addressed this issue for England using much better data than what has generally been used in such studies. They also tested their identification assumption by using a falsification test.

They find that school expenditure has a consistently positive and significant effect on all national tests taken at the end of primary school and has a higher effect for students who are economically disadvantaged. Thus, in contrast to much of the literature, they find evidence that a general rise in school expenditure can raise educational standards. Our analysis suggests that the English policy of increasing school spending over the past few years has been worth the investment.

Doane B.T. (2008)¹¹ Studied the relationship between school facilities & academic achievement. This project involved an interview with three faculty members at each of three high schools in rural Appalachian Ohio. In order to be considered for participation in this study, the chosen schools had to meet
one of following criteria: recently having moved into a new facility, currently building a new facility, or having no current plans for new construction. The majority of interview participants felt that the building does have an effect on pupil’s achievement. It found that the school facilities affect the student’s achievement significantly.

Such as Barbara Hotchkiss who believe that learning in an historic school facility provides students with a unique educational experience that cannot be replicated in any modern facility. There are times when other facility improvement goals need to be met that cannot be resolved by renovating the existing facility. This was the case at Creek side where it made more sense to build a new facility so the district could consolidate a number of different schools on one central campus.

Fabunmi et.al (2007)\textsuperscript{12} investigated to study Class factor as determinants of secondary school student’s academic performance in Oyo state Nigeria Thus secondary school student’s academic performance. The study investigated the extent to which class factors like class size, student classroom-space and class utilization rate determined the performance of secondary school students in Senior Certificate Examinations (SSCE) conducted by the West Africa Examinations Council (WAEC) in Oyo State, Nigerian between 1997 and 2002 school years. The study was conducted ex post factor under a descriptive survey research design, 200 out of the 336 secondary schools in the state were randomly selected for the study.

The multiple regression analysis and one-way analysis of variance were used to analyze the data. The two research hypothesis which guided the study was
tested at 0.05 minimum level of significance. Findings revealed that the three class factors (Class size, student classroom space and class utilization rate), when taken together, determined significantly secondary school students academic performance in Oyo state between 1997 and 2002. These factors, when taken separately, also determined significantly secondary school student’s academic performance in the state.

Kathryn & Margaret (2003)\textsuperscript{13} attempted an empirical study of the impact of school inputs on pupils’ performance in private (independent) schools in the United Kingdom. They used a new school-level panel dataset constructed from information provided by the Independent Schools Information Service (ISIS). We show a consistent negative relationship between the pupil-teacher ratio at a school and the average examination results at that school. Our estimates indicate that the relationship persists even when we are estimating “added-value” models conditional on previous exam results. A particular advantage and distinguishing feature of our dataset is that it consists entirely of private schools. This is important for several reasons. First, resources vary widely between private schools – much more so than for state schools. It may therefore be easier to identify a relationship between resources and pupil outcomes. Secondly, on average, private schools have a lower pupil-teacher ratio than state schools, which might also lead to different effects. Teaching may be organized differently in private schools than in state schools.1 Different resource utilization may lead to different resource effects. Thus, finally there is a significant relationship found in school inputs & student performance.
Mark Schneider (2002) concluded from the research presented that school facilities affect learning. Spatial configurations, noise, heat, cold, light, and air quality obviously bear on students' and teachers' ability to perform. Focusing on fine-tuning the acceptable ranges of these variables for optimal academic outcomes. Decisions about school facilities, once translated into brick-and-mortar, affect the daily performance of the generations of teachers and students who use them. These decisions are based on tradition, available technology, experience with “what works,” and the changing needs of the times. Good facilities research allows us to productively sort through this mix and can help produce long-term, positive effects on academic outcomes.

This research analyses the causal effect of class size on scholastic performance in Dutch primary schools. Empirical estimation of this effect is difficult due to the possible endogeneity of class size. The resulting class size function is discontinuous. The estimation results show that after correcting for endogeneity, pupils in large classes do no worse - and sometimes even better - than identical pupils in small classes. This result holds for a large variety of functional fonts, specifications and using restricted samples.

By reducing class size, the (expected) number of classmates with similar IQ falls which may have a negative effect on achievement. We test this hypothesis by constricting a new variable which counts for each individual the number of pupils in the class with the same IQ. In all specifications this new variable has the predicted positive effect on performance and is in most cases highly significant. Moreover, of the twelve class size effects that we
estimate, two changes from significantly positive into insignificantly positive when the number of similar classmates is included, two estimated effects remain insignificantly positive, four effects change from insignificantly positive to insignificantly negative, and four effects change from insignificantly negative to significantly negative.

Duraisamy (1999)\textsuperscript{15} compared the cost, some indicators of Inputs and outcomes in public and private sector primary schools. Using a primary survey data from rural Tamil Nadu, The data for this study was collected as part of a long survey for UNDP research project on Secondary education in Tamil Nadu. Two districts viz North Arcot and Dharampuri of Tamil Nadu were selected for data collection. Six and four villages respectively were taken from these districts. The data was collected from 3868 households and 31 schools from these villages. The children from chosen villages and schools were subjected to the achievement tests in language and arithmetic. Besides, questionnaires were used and canvassed to headmasters and teachers to elicit information on their education, experience and teaching methods etc.

The study aimed to examine the effect of school management and other individual and household level factors on the verbal and mathematics achievement of children in class IV and V. The institutional and household effects with respect to expenditure incurred on schooling were computed from survey data.

Major findings of the study are summarized as under:
The institutional unit cost was computed for public, private and private unaided schools. The annual recurrent institutional unit cost is about Rs.1000/- for all primary schools. The per student unit cost in the highest in private aided schools which incurred Rs.1574/- per year. In case of private schools it is calculated to be Rs.174/- only.

The rather low cost of private unaided schools despite due to low teacher pupil ration is because of very low teacher salaries.

95 to 98% of expenditure accounts for teachers salaries.

The teaching materials that are included under other items constitute a very insignificant percentage but it is higher in the private unaided than other schools.

The pupil teacher ratio is highest in Government schools and lowest in private unaided schools.

Boys seem to perform better than girls in the IV grade mathematics.

Students from private unaided schools do significantly better than public school counter parts and private aided school students in both the classes and subjects.

Harter (1999)\textsuperscript{16} conducted a study to enquire about the relationship between school expenditures and student performance. The data for this study was taken from Public Education information Management System (PEIMS) data base of the Texas Education Agency (TEA) and include school spending and student information of the entire state: The final working
sample contains information on 2860 public Secondary schools in Texas. Student achievement for the Secondary schools is measured at fourth grade student’s level of achieving mastery in math and reading. Variables representing students’ academic potential and socio-economic background are also reported in the PEIMS data. In this study expenditure for instruction are divided into 11 object categories of payroll, purchased services, materials and supplies and other operating expenditures.

Multiple regression analysis was used to estimate the relationship between schools per pupil expenditure and average student achievement while holding constant student academic potential, student’s socio-economic background and school characteristics.

The major Finding of the study includes:

Socio-economic background does play a greater role in explaining performance in reading as opposed to math.

Spending for regular school upkeep, which includes the provision and maintenance of school outcomes.

Expenditures for teachers, base salaries do not demonstrate a significance relationship with achievement.

Expenditure for functions outside institution including school administration, instructional media, guidance, health services, extracurricular activities and staff development fail to show a significance relationship with fourth grade student’s math and reading performance.
The low-achievement school is having relatively high payroll expenditures per pupil.

Behrman et. al (1997)\(^{17}\) conducted a study to examine the importance of school inputs other than student time in schooling effectiveness in rural Pakistan

The sample integrates for selective school attainment and mitigates omitted variable biases. The sample for this study was drawn from a household survey rather than a school survey. Conducted by the International Food Policy Research Institute (IFPRI), Under auspices of Pakistan Ministry of Food and Agriculture Beside in this household survey a questionnaire was designed, to yield the indicators of school Inputs and was administered to teachers in local and nearby schools. The target sample was administered tests of literacy and numeracy specially designed by the ‘Education Testing Service.’ The sample was also exposed to the Raven (1965) coloured progressive matrices (CMP), a test of reasoning. Family background and school variables were also taken into consideration in detail. The data were analyzed after using it on GAUSS computer package.

The major findings of the study include:

The schools vary substantially in their effectiveness in producing cognitive achievement in math and reading.

Most of the school effects are correlated positively with student exposure to teachers, teacher pupil-ratio and teacher Inputs and,
Neither the school materials nor infrastructure are significantly associated with cognitive achievement.

Psacheropoules et al (1997)\(^\text{18}\) studied to examine the extent of private expenditure on education in a country that is amongst the –poorest-Bolivia. This country is known for high illiteracy and repetition rates. Private education is found at all levels of schooling. At the primary and secondary level 22% of students were enrolled in private schools. The proliferation of private school in Bolivia is the result of inability of public schools of provide a Inputs education The data used in the analysis came from both the 1990 and 1992 ‘Encuesta Intergrade de Hogares’ Carried out by the Institute ‘Nacional de Esladistica’: The survey was carried out in 9 cities with 30350 respondents in 6347 households. The survey contained information on various household expenditures along with other household and individual characteristics. Information covered the topics such as education, migration, health and employment. After data analysis, the investigators found that Bolivian household spend privately on education because Inputs of public education system is low and generate high repetition rates. They also found that private school students out-perform public school students they studied. Since, education in Bolivia has such high reward in terms of income, it is no wonder that parents in Bolivia would react to poor public school Inputs by sending their children to private schools.

Middleton Roper David (1996)\(^\text{19}\) conducted a study with purpose to examine the relationship between school expenditure and student academic achievement in 127 Public School District of Alabana. The three categories
of per pupil expenditure examined in the study were instruction, instructional support and general administration and central support services, while student performance was measured by the Stanford Achievement Test. The subjects were 4th, 7th and 10th grade students enrolled in 127 Public School Districts of Alabama. The data were analyzed by computing correlation co-efficient between achievement and expenditure variable, then being regressed on expenditure variables to determine whether relationship is significant. When considering the data from all 127 districts, the study found that there is a significant positive relationship between public school instructional expenditures and student academic achievement. However, when these relationship were considered for separate socio-economic groups, only that for highest socio-economic level was found to be significant. No significant relationships were found in the other groups. The instructional support expenditures category showed no significant relationship with achievement for any of the separate group or for the state as a whole.

These findings indicate that the relationship between expenditure and achievement is a curvilinear, rather than linear relationship

Kathryn, (1996)\textsuperscript{20} attempted to develop and estimate a model of an individual’s High-School Graduation decision within the framework of utility maximization. The model combines the idea of background characteristics being inputs in the production of educational attainment and that of an individual who makes decision in response to the expected return to graduation each individual, the investigator was able to separate the non-
income effects of family, neighbourhood and school characteristics on educational attainment (the education production process) from linkages through which these characteristics influence youth’s expected returns to education and hence attainment. The findings of the study suggest that

Youth do make their schooling decision based on the expected income returns to education.

Most of the effects of family, school and neighbourhood are working through the education production process.

The school and neighbourhood Inputs both affect schooling attainment.

When neighbourhood characteristics are controlled, school Inputs has an effect on the probability on individual will graduate. However, when neighbourhood characteristics are not controlled these effects are masked. In this case school expenditures per student do not appear to affect the probability of graduation.

Chubb and Moe (1990)\textsuperscript{21} concluded that money is not what makes some schools more effective than others. Better schools do not require lots of expensive equipment or huge new buildings or vast libraries. The performance problems of schools have little or nothing to do with inadequate funding, and they cannot be corrected by digging deeper into the public purse.

Padhan, A. (1988)\textsuperscript{22} conducted research work to study what primary schooling is expected to produce and what it actually produces. So it was found imperative to learn more about how primary schools function, what
they accomplish in terms of investment and its effectiveness in education and also the inputs and outputs.

The following are main objectives of the study,

To examine the expenditure as input from different sources on pupils and staff from institutional and organizational managements, and

To analyze the production function of Secondary education by examining the output of education compared with inputs.

Methodology: The area of operation for this study was District Sambalpur of Orissa. The major sample consisted of 504 individuals, 72 selected purposively from each of the strata (sub-divisional headquarter) representing district. Two students from every grade of each school, one from urban area and another from rural area were selected randomly by using Tippet’s Random Numbers resulting in 204 students finally. The investigator had employed three interview schedules as basic tools for collection of data from teachers, students and the labour force.

After the data analysis, the investigator came up with the following major findings:

Major expenditure come from Government and minor expenditure was incurred by students.

The societal cost consisted more as compared to students incidental cost.

An average of 31% of resources was wasted due to drop outs and stagnation.
None of the variables i.e. school cost, teacher qualifications, teacher’s experience, and students S-E-S had significant impact on scholastic achievement of pupils when the effect of the remaining variables were held constant.

Zahid (1996)\textsuperscript{23} investigated the costs of education and academic performance in Senior Secondary Schools of Delhi. The objectives of the study were to; (i) determine the private and institutional costs of education in Senior Secondary Schools (ii) to examine the academic performance in Senior Secondary Schools (iii) to assess the impact of cost on academic performance in Senior Secondary Schools, (iv) to ascertain factors attributable to high and low academic performance in senior secondary schools, and to (v) develop a composite index of efficiency costs and academic performance in senior secondary schools.

\textit{Sample:} Twenty four schools were selected on purposive basis of each type covering Government, Government aided and private from each zone. From these schools of Delhi the sample size constituted of 240 teachers and 360 students having been selected randomly.

\textit{Tools:} The tools used to collect data included questionnaires, data schedules and observation schedules. Percentages, mean, S.D, ‘t’ tests, factor analysis and correlation techniques were applied to analyze the collected data.

Besides, other findings the important findings of the study are,
The per-student institutional cost worked at to be Rs. 1677/- for Government schools students, Rs. 1556/- for Govt. aided schools and Rs. 1225/- for private school students.

Salaries of teaching staff proved to be major component of institutional cost i.e., 81 percent.

Teacher pupil ratio for Govt. school was 1:39, Government aided schools was 1:33 and private schools was 1:32.

Tilak B.G. (1995)\textsuperscript{24} Conducted a study on state finances in six states (Assam, Haryana, Karnataka, Kerala, Maharashtra and Tamil Nadu) as a part of DPEP several baseline studies that provide statistical description and analytical profile of the pattern of financing of education (particularly Secondary education: primary and upper primary), and projections on the financial requirements of Secondary education in each state, if Secondary education were to be universalized by the turn of the century. One of the major finding of the study was the “the salaries of the teachers and other staff consume the largest proportion of the budget”, leaving little amount for other items.

Singh and Saxena (1995)\textsuperscript{25} Attempted to study the effects of school related variables on pupil achievement using the Baseline Assessment Studies (BAS) data in eight states. The main objectives of this study are to study:

The variation in achievement in mathematics and language within and between schools;
The effects of pupils background on their mathematics and language achievement;

The between school variation in mathematics and language achievement;

The effects of teacher Inputs on achievement in mathematics and language across schools;

The contribution to mathematics and language achievement between schools by the school resources.

The association of school academic climate with the pupil’s achievement between schools.

Data and Methods involved in the study:

The data collected under BAS was used in this study. The 4 DPEP target districts were selected from eight states. The sample size constitute of 1746 schools, 23700 students and 4879 teachers. The students were taken from class IV and V. The standardized tests on mathematics and reading were administered on these students.

The three sets of school level variables were included in the HLM analysis independently after adjusting for the pupil’s background and contextual variables. This approach was adopted for all the eight states. In order to have synthesis of state results the regression coefficients and their standard error with probability level less than 0.20 for each variable was taken for applying meta analysis with the help of HLM computer programme.

Main Results:
The results show that there are large and statistically significant differences between boys and girls within schools in their achievement in mathematics in states of Assam, Haryana, Karnataka, Madhya Pradesh and Orissa. These differences are also found statistically significant in language achievement for all states except Haryana and Kerala.

At the school level the mean SES is positively associated with the achievement in mathematics and language after adjusting for pupil’s background.

Mother’s and Father’s education and fathers occupation have positive association with pupil achievement and are mostly consistent across states;

The factors of educational and physical facilities in school have positive association with school mean achievement in mathematics.

David Richard (1992)²⁶ Conducted a study with purpose to indentify the relationship between educational expenditure and student achievement in Texas independent School Districts with an enrollment of between 1,000 and 3,000 students during 1989-90. The relationship of socio-economic status (S-E-S) and ad valorem wealth to achievement were analyzed.

Financial and achievement data were obtained for the defined population for the taxes education agencies Public Education Information Management System (PEIMS) data base. The data were analyzed to indentify the relationship between the various financial data and eleventh grade students’ achievement. A comparison of four groups of
school districts designated by ad valorem wealth and S-E-S also was conducted to identify difference in student achievement.

The major findings of the study were as follows;

Total per student expenditure and direct average teacher salary had a direct relationship with the achievement in mathematics but not in languages and art.

No significant direct relationship with the student achievement was shown for instructional-operation expenditure and per-student expenditure on support services.

Differences between high and low ad Valorem wealth and student achievement were found between high S-E-S and low S-E-S groups. This means that S-E-S is a dominant factor related to higher student achievement when compared with district wealth.

Manvikar Sharada, (1984)\textsuperscript{27} studied the relationship between expenditure pattern and efficiency levels of Secondary Schools of Bangalore District. The main objectives of the study were:-

To identify and classify the components of expenditure of Secondary Schools of Bangalore District.

To compare the expenditure patterns of different types of Secondary Schools of Bangalore District.

To find out the relationship between components of expenditure and components of efficiency of Secondary schools of Bangalore District.
To compare the efficiency patterns of rural and urban secondary schools.

The data was collected in three Educational Districts of Bangalore Revenue District; From the 313 Secondary School of three districts only 110 schools was finally taken for data collection. The sample constituted of 68 city schools and 42 rural schools.

The research had developed a composite questionnaire containing three parts. In part general information about the schools was collected. In part B, the information about the expenditure pattern was collected and in part C, through a self rating scale for the Head Masters the operational efficiency of the secondary schools was arrived at.

The data was analyzed using mean, standard deviation, t-test, correlation, and regression analysis;

Some of the major findings of the study include:

Government and Corporation schools tend to be less efficient then private un-aided and private aided schools.

The major part of the school’s total expenditure (55-70%) in incurred on teacher salaries.

The expenditure on salary, our all recurring expenditure and total expenditure are not significantly related to school efficiency.
Das, R.C. (1974) Conducted a study to ascertain whether there was any impact of the physical conditions (facilities) of primary schools on the retentively and regular educational program of its children.

Data were collected from a representative, sample of 380 primary schools in Sibsagar district in Assam. These schools constituted about 15 percent of school population in the district. The sample included a proportionate representation of schools in urban and rural areas. The relationship between physical facilities in schools and the deficiency in education was determined by computing the product moment correlation coefficient. Association between physical facilities and wastage in education was also tested by applying the chi-square test.

The study revealed that there was significant relationship between efficiency in education and physical facilities is schools. The school conditions definitely seemed to have a favourable impact on school education. Better physical facilities the attractive and retentive power of the school as well as provided situations conducive for effective education and hence contributed to towards better education of children in that school.

Brickell (1958) Found that small expenditure item had considerable relationship to efficiency. Brickell’s findings suggest that good schools do not spend more money on everything and there is a high correlation between some items to expenditure and efficiency of education.
2.4 STUDIES RELATED TO ACHIEVEMENT AND SCHOOL TYPE

Sunita Badola (2013)\textsuperscript{30} studied the effect of school’s on academic achievement motivation of secondary level students. This study has been conducted to study the academic achievement motivation and different administrative setups of secondary school students. Sample of 480 students of secondary level were taken from Pauri and Tehri Garhwal, (Uttarakhand State). The data was collected on the basis of Academic Achievement Motivation Test developed and standardized by Dr. T.R. Sharma (1984). Analysis of variance showed that there was significant difference among Government, Public and convent School Secondary Students on their academic achievement motivation. The mean difference was found significant on male and female as well as Urban and Rural Secondary School Students on their Academic Achievement Motivation. Insignificant difference was found between Public & Convent school students on their academic achievement motivation.

Olatunji Sabitu et. al (2012)\textsuperscript{31} examined the School Types, Facilities and Academic Performance of Students in Senior Secondary Schools in Ondo State, Nigeria. The study investigated the influence of school types and facilities on students’ academic performance in Ondo State. It was designed to find out whether facilities and students’ academic performance are related in private and public secondary schools respectively. Descriptive survey design was used. Proportionate random sampling technique was used to select 50 schools in Ondo state. Two set of research instruments named School Facility Descriptive questionnaire and Students Academic
Performance Questionnaire for principals; and School Facility Descriptive Questionnaire for the teachers were used for the study. T- test was used to analyze the data. All hypotheses were tested at a significant level of 0.05. The study revealed a significant difference in facilities available in public and private schools in Ondo State. It however revealed no significant difference in academic performance of students in the two types of secondary schools.

Damien Nzabihimana (2010) the purpose of this study was to establish the relationship between the nature of schools and the academic performance of pupils in primary schools in Gasabo district Rwanda. Specifically the study wanted to compare the academic performance of pupils in public and private primary schools in Gasabo district Rwanda; to establish the effect of availability of school facilities on pupils' academic performance and to establish the effect of teacher Quality on pupils' academic performance in Gasabo district Rwanda. The study was done by developing a conceptual framework relating the nature of schools to pupils' academic performance. Using a descriptive cross-sectional survey design, data were collected from 40 teacher and 10 head teacher using questionnaires and interview guide as the main data collection instruments. Also data on PLE results for 300 pupils in the selected primary schools was obtained which was used in comparing pupils' performance in the two categories of schools. Data were analyzed using frequency tables and summary statistics and lastly using t-test in comparing pupils' performance in private and public primary schools in Gasabo. The study revealed that there is a difference in the academic performance of pupils in public and private primary pupils in Gasabo district
with pupils in private primary schools performing better than their counterparts. School facilities and teacher quality were also found to be affecting academic performance in Gasabo district.

Dahar et. al(2010) The paper investigates the impact of per pupil expenditures on academic achievement of students at the secondary stage in the rural and the urban areas of Punjab. School expenditures that indicate the provision and allocation of resource inputs into schools play a vital role in the school performance. The term “per pupil expenditures” is the more specific indication of school expenditures. The study uses the two instruments i.e.” school profile proforma” and “result sheet”. The study identifies per pupil expenditure, pupil teacher ratio and student achievement at the secondary stage.

First the collected data were summarized at school level. Then the school level data showing the between school variation were shifted into SPSS data file. Through SPSS, Linear Regression analysis was used to find out the differential impact of PPE on student achievement.

The study finds that the impact of per pupil expenditures on student achievement is insignificant. However, the direction of relationship is negative for the rural and urban arts students, and the urban science students. However, the relationship is positive for the rural science students. The major policy implication of the study is that if per pupil expenditures are equalized or properly allocated and effectively utilized, academic achievement and the quality of education may be improved to a great extent.
Yusuf M.A & Adigun J.T (2010) examined the influence of school type, sex and location on students’ academic performance in Ekiti state secondary schools. The sample of the study consisted of forty (40) secondary schools. Four (4) Government colleges (State Unity colleges) were purposively selected for the study while thirty-six (36) public Secondary schools were randomly selected for the study. The school sampled had presented candidates for both West Africa Examination Council (WAEC) and National Examination Council (NECO) respectively. An instrument, school type, sex, location and students’ academic performance inventory was used to collect data for the study. Data collected were analyzed using percentage scores and t-test statistics. Three null hypotheses were generated and tested at 0.05 level of significance. Findings from the study showed that the level of students’ academic performance was low. It was also revealed that school type, sex and location had no significant influence on students’ academic performance. Based on the finding it was recommended that educational planners, administrators and evaluators should appreciate the fact that the Parent Teacher Association; Guidance and Counselors, philanthropists, students and society at large have crucial role to play in improving students’ academic performance and solicit their supports in this regard.

Chaturvedi M (2009) investigated the effect of school environment and certain demographic variables on achievement motivation and academic achievement of young adolescents. The sample consists of 300 students in the age range of 12-15 years, selected by stratified sampling method from
various schools of Bhopal. School environment was measured with the help of ‘School Environment Scale’ (Misra, 1984). Deo Mohan Achievement Motivation Scale (Pratibha Deo & Asha Mohan, 1985) was used to measure achievement motivation. Percentages of marks obtained by the subjects in last three years were used as a measure of academic achievement. The scores of the subjects were analyzed with the help of product moment correlation and regression analysis. ‘T’ test and ‘F’ test were used to compare the scores on gender, grade, father’s occupation and type of school. All the six sub-scales of school environment have significant effect on achievement motivation and three sub-scales have significant effect on academic achievement. The scores on achievement motivation as well as academic achievement differed significantly in case of gender grades and father’s occupation. In type of schools the difference was significant on academic achievement only. It is concluded that school environment plays a significant role in achievement motivation as well as academic achievement of young adolescents.

Timothy A (2007) investigated class size & academic achievement. The data analyzed here will be drawn from the TIMSS data collection for El Salvador. TIMSS (2007) is the fourth cycle of IEA’s international comparative assessments designed to improve math and science teaching worldwide (TIMSS & PIRLS International Study Center website, n.d.). The sample design included explicit stratification by grade (fourth only, fourth & eighth) and urbanization (urban, rural). For rural schools, implicit stratification was performed by school type (community-based, council-based, or other) and region. Schools were sampled using systematic random
sampling and small schools were sampled with equal probability. According to this data, several patterns can be noted. Students in the urban areas report that they have more books at home, feel safer at school, come from more affluent homes, and have access to more instructional materials \((p \leq 0.001)\). And, while the gender and school budget variables show no significant difference, the rural teachers report having more education than the urban teachers \((p\leq 0.001)\). They find a difference between classes that can be attributed to something other than the size. The estimates from these models suggest that both instructional supplies and materials have an important negative relationship with class size. Yet, the strength of these coefficients also suggest that there are other factors outside of the ones in this model that may explain the positive coefficient of the association between class size and academic achievement.

Mbiti isaac (2007)\(^37\) utilize data from the Kenyan secondary school system to obtain causal estimates of the effects of school quality on student achievement. The placement of students into government secondary schools in Kenya is based on national primary schools test scores and district quotas. Using a unique data set containing high school and primary school test scores, district of origin and school level information for every high school exam taker in the country, he compare the high school examination outcomes of students from the same district who had very similar primary school test scores but were assigned to different schools due to the quota. He extend the analysis to examine whether peer effects or school inputs have a greater effect on student performance finds that school quality positively affects the achievements of students.
Fabunmi et. al (2007)\textsuperscript{38} investigated to study Class factor as determinants of secondary school student’s academic performance in Oyo state Nigeria. The study investigated the extent to which class factors like class size, student classroom-space and class utilization rate determined the performance of secondary school students in Senior Certificate Examinations (SSCE) conducted by the West Africa Examinations Council (WAEC) in Oyo State, Nigerian between 1997 and 2002 school years. The study was conducted ex post factor under a descriptive survey research design, 200 out of the 336 secondary schools in the state were randomly selected for the study. The multiple regression analysis and one-way analysis of variance were used to analyze the data. The two research hypothesis which guided the study was tested at 0.05 minimum level of significance. Findings revealed that the three class factors (Class size, student classroom space and class utilization rate), when taken together, determined significantly secondary school students academic performance.

Christopher & Sarah (2006)\textsuperscript{39} attempted to study academic achievement in charter private public schools data was collected through NAEP (national assessment of educational progress) The 2003 NAEP samples are over ten times larger than in any previous NAEP administration, providing achievement and student, teacher, and administrator survey data on over 190,000 4th graders (up from 13,855 in 2000) in 7485 schools, and more than 153,000 8th graders (up from 15,930 in 2000) in 6092 schools. This new analysis of the complete raw data employs advanced statistical techniques (hierarchical linear modeling) to study the relationship between school type and mathematics achievement while controlling for
demographic differences in the populations served by the schools. This analysis of US mathematics achievement finds that, after accounting for the fact that private schools serve more advantaged populations, public schools perform remarkably well, often outscoring private and charter schools.

Newhouse D & Beegle K (2006)\textsuperscript{40} in their study attempted to know Effect of School Type on Academic Achievement: Evidence from Indonesia. Using Indonesian data, researchers evaluated the impact of school type on the academic achievement of junior secondary school students (grades 7-9). Public school graduates, after controlling for a wide variety of characteristics, score 0.17 to 0.3 standard deviations higher on the national exit exam than their privately schooled peers. This finding is robust to OLS, fixed effects, and instrumental variable estimation strategies. Students attending Muslim private schools, including Madrassahs, fare no worse on average than students attending secular private schools. Our results provide indirect evidence that higher-quality inputs at public junior secondary schools promote higher test scores.

Rivkin et.al (2005)\textsuperscript{41} studied to examine the impact of schools and teachers in influencing achievement with special attention given to the potential problems of omitted or miss measured variables and of student and school selection. Unique matched panel data from the UTD Texas Schools Project permit the identification of teacher quality based on student performance along with the impact of specific, measured components of teachers and schools. The results suggested that the effects of a costly ten student reduction in class size are smaller than the benefit of moving one standard
deviation up the teacher quality distribution, highlighting the importance of teacher effectiveness in the determination of school quality. May also contribute to science achievement as measured by the GHSGT.

Sielke c (2004) this study focused on the relationships between eight school-level educational inputs and a measure of student achievement in science as the output. Data were accessed from the Georgia Department of Education’s website. Additional quantitative data were collected through interviews with and records from school-level administrators. The study included 28 urban high schools within three metropolitan school districts in the State of Georgia. The data were analyzed using a combination of parametric and non-parametric methods. There was a significant negative relationship between the percentage of economically disadvantaged students (PEDS) and performance in the science section of the Georgia High School Graduation Test (GHSGT). Principal longevity, as a leadership dimension, also showed a significant positive relationship to GHSGT. Although the positive relationships between the numbers of science labs per week and professional development for science teachers and student performance on the GHSGT were not statistically significant at the stringent 0.006 α-level, their effect sizes indicated positive practical significance. Concordancy-discordancy analyses using the Somers’d method indicate that 53.5% of the sample schools were discordant? Eight schools performed better than expected given their percentage of economically disadvantaged students (PEDS) values, indicating that other factors beyond student economic status.
Mrs. Vinita B. (2004)\textsuperscript{43} Compared the effect of learning level on personality traits at upper primary level Tribal students of Residential and Non Residential School in Tribal areas. Objectives studied were to find out the learning level, personality traits, and effect of learning on personality traits of tribal students at upper primary level of residential and non-residential schools in tribal areas. Tools used were the Differential personality inventory by arun kumar singh and ashish kumar singh, Self made text for learning level of all the subjects of class -7, Self made questionnaire for principal, Self made questionnaire for class teachers, Self made questionnaire for hostel wardens. The findings are there is positive effect of learning level on personality traits. Learning level of Residential students is higher than that of Non residential students. The personality trait Decisiveness is also higher the personality trait responsibility in boys is higher than that of girls. “Emotional stability is higher for Residential students.” Friendship" is same for all students.

Moscoso R.Y. (2000)\textsuperscript{44} His work expanded on previous research on school effectiveness by developing and testing hypotheses about the specific relationships between school characteristics including aggregated student and classroom characteristics and student academic performance. The work used data from the “Early Childhood Transitions Project,” a study of intensive social and educational services in a suburban school system, to identify and test the effect of a limited set of school-level characteristics on test score gains made by individual students on the Metropolitan Achievement Test (MAT) between the second and third grade.
The analyses found that there are differences in the size of schools. Test score gains are affected by concentrations of these types of students at the schools. Students at schools in this sample with high concentrations of non-English speaking students or high concentrations of Hispanic students achieve lower test score gains than students in other schools. Another “concentration effect” emerged from the analysis of high performing students in the sample. In particular, female students with high scores on the second grade MAT who are in schools with large concentrations of students who perform poorly on the second grade exam have smaller third grade test score gains than similar students who are in schools without a concentration of low performing students. These results suggest that more attention be paid to the influence that the characteristics of the student population have on the school’s ability to implement the curriculum.

Murthy and Kulshreshtha (1999) tried to study whether academic anxiety facilitates or impedes academic achievement. In two management system viz private and public schools. A sample of 199 class IX students comprising boys and girls (100 boys & 99 girls) were taken from Government and public school of South Delhi. The Academic Anxiety scale of A.K. Sinha was used as a tool to collect the data. The collected data were analyzed statistically using mean, standard deviation, correlation co-efficient; one way ANOVA and for post hoc comparison, Duncan’s Multiple range Tests.

Objectives:

The following objectives were set and studied;

To study the influence of academic anxiety on academic achievement,
To study the influence of two management schools on academic achievement and,

To study the significance of difference among four levels of academic anxiety on academic achievement.

Major Findings of the study are as under:

Academic anxiety and academic achievement are inversely and significantly related. It means, as the academic anxiety increases, the achievement level decreases.

The mean difference of boys and girls of government and private schools differed significantly on their academic achievement. The private boys have achieved far better followed by private girls than Govt. boys & govt. girls whereas, on the whole boys & girls do not differ significantly in academic achievement.

It has been found that government and private school students differ significantly (level of significance.01) in academic achievement and this difference is in favour of private school students.

Goldhabar (1996)\textsuperscript{46} conducted a study to answer the question of whether public-private school choice is a policy that would help improve the overall achievement of students. Separate models of achievement were estimated, from which estimated sector achievement differentials were calculated. The data used for analysis was derived from first two waves of the National Educational Longitudinal Study of 1988 (NEL, 88). This data has to advantage of being the only national survey (of United States) to data that
has detailed schooling information on both private and public school students. NET,88 also includes the results of standardized test on four subject areas; Math, Reading, Science and History. The tests were administered at two points in time. The initial tests were administered to students during the second semester of 8th grade and the first follow-up survey re-tested the same students in the second semester of the 10th grade. The math sample consisted of 3347 students in grade 10th with 451 private school students while as the English/reading sample consisted of 3190 students including 399 private school students.

The statistical analysis and interpretation showed that students in private schools tend to come from families with more educated parents and have substantially higher incomes. Secondly the students from private sector on average outscore their public school counterparts by 7.5 points on 10th grade test in Math and 3.8 points on Reading test. Among the major findings, it was ascertained that overall private schools have no statistically significant advantage in the education of mathematics or reading. This finding is replicated when the comparison was made between public schools and the sub-samples of catholic private schools and elite private schools. However, on individual level, parents do appear able to make Inputs distinctions between schools. Parents are more likely to send their children to a private school with smaller class size and higher S-E-S students.

James Estalle et al (1996)47 investigated the impact of public Vs private finance of education and public Vs private management of schools on school cost and efficiency, using school level data on revenues, expenditure,
enrollments, examination scores and student characteristics from Indonesian Primary Schools. The data for analysis was taken from National Survey of Public and Private Schools in Indonesia conducted by the Ministry of Education and Culture (MOEC) 1992. The survey collected data on a wide range of school level variables including number and salaries of teachers, conditions and availability of classrooms and libraries, level and source of funding, type of expenditure and average score on sixth grade national examination in Mathematics and Bahasa Indonesia.

The objectives of the study were:

To know whether publicly or privately managed or financed from public or private sources behave differently, in terms of their inputs and costs.

Does one arrangement have an efficiency advantage over the other?

To know whether the factors that determine school efficiency, does also determine the amount of public and private funding.

In this study the authors found that:

In Indonesia, where schools generally operate at very low funding level, more money is likely to bring better school Inputs.

Private management is more efficient than public management in achieving academic Inputs.

Private funding also improves efficiency whether schools are publicly or privately managed, and,
Private managed schools behave differently from public managed schools because they have different objective functions, greater autonomy and they have to face greater pressure from market place to operate efficiently.

Singh Satvir (1996) studied the determinants of learner achievement at primary stage sing the data of Karnataka State Baseline Assessment Study covering 177 schools, 442 teachers and 2568 pupils. The objective of the study was to find out the determinants of learner achievement at primary stage by reanalyzing the Base-line Achievement study (BAS) data of Karnataka State alone.

Methodology: A multi-stage stratified random sampling procedure was followed in selection of schools, teachers and students. The sample comprised 30 students of class IV (terminal stage of primary schooling) and five teachers from each of 35-45 primary schools that were randomly selected from each of the 4 districts viz, Belgaum, Kolar, Mandya and Raichur. The HLM analysis was used to find out the achievement differences among schools. Three models such as null, explanatory and combined were developed for mathematics and language separately.

Major Findings of the study include the following:

There were large and significant differences between schools in their mean performance.

Govt. Schools performed lower than privately managed schools.

On average Boys were performing better than girls.

There was a positive association between mean S-E-S (Intake composition) and school mean performance.
Bashir Sajitha, (1994) investigated as whether the greater managerial discretion associated with the private sector leads to high academic performance in Tamil Nadu.

Sample size and instruments used in this study

A multigrade sampling design was used, yielding an analytic sample of pupils in schools (public school, 20, private aided schools and 20 unaided private schools.) located in five districts of state. A maximum of 25 students and five teachers per school were selected, using systemic selection with a random start. The largest sample was subjected to standardized tests in language and mathematics. These tests were based on class IV curriculum. Background information on pupils, teachers and schools was collected through personal interview using pre-test instruments by the investigator.

Preliminary analysis was conducted using Ordinary Least Squares to important predictor variables at both the pupil and school levels which could be used in the subsequent HLM. Analysis and to eliminate variables with little explanatory power.

The two student outcome variables considered in this analysis are achievement is mathematics and reading comprehension. Raw scores on each of the tests, unadjusted for guessing, were used as the dependant variables.

Major findings of the study:

Neither the father’s education nor mother’s education seems to affect student performance.
Aided schools exert a strongly positive effect on mathematics achievement but the effects for reading comprehension are mixed.

The class-teacher ratio has a positive effect on mathematics achievement indicating that schools where teachers handle more than one class actually do better, while as for reading comprehension, the class-teacher has the expected negative effect.

Pupils in schools with better physical facilities score higher.

The main conclusion of the statistical analysis is that after controlling for school variables, and other pupil background variables, private unaided schools performed worse than public schools.

Other important results include the fact that longer teaching experience seems to produce a negative effect (perhaps due to professional obsolescence).

Kingdon (1994)\(^{50}\) in her study found that in Uttar Pradesh, private unaided junior schools were significantly more cost-effective than either government or private aided junior schools. Surveying grade 8\(^{th}\) students in 30 Secondary Schools in Lucknow in 1991, and controlling for student background characteristics and selection effects, it was found that students in private unaided junior schools performed significantly better on tests of reading and mathematics than students in government and private aided schools.

White (1992)\(^{51}\) Conducted a study to determine whether existing research allow us to answer a narrow but crucial question in the larger debate over educational choice. Are student achievement differences between public and
private schools large enough to be of relevance to the policy debate over educational choice? To answer such a query, the author has analyzed the research based on High School and beyond study (HSB). The HSB study was based on random sample of approximately 1000 public and private schools. The study consisted of three waves of interviews, testing and data collection.

The major results of the study are as under:

Once public and private schools are statistically equated, they appear to produce similar gain in achievement.

On average catholic school students, slightly scored higher in vocabulary and mathematics test than public school students.

Student background characteristics like SES largely influence the educational gains.

That the difference in achievement in public and private schools are trivial in size and highly uncertain.

Veeragahavan and Bhattacharya(1989)\textsuperscript{52} Studied as to whether school achievement varies in terms of type of school (Public school, Missionary School, Government Run Urban Schools and Government Run Rural School) and whether school achievement is influenced by students achievement motivation and teacher effectiveness. The sample was taken from 4 types of schools and student distribution was as follows: Public School (66); Missionary Schools (60); Government-run Urban Schools (102), and Government-run Rural Schools (57). Thus a total of 285 students constituting the sample with 158 male and 127 females. Besides, 46 teachers
teaching XII class, of whom 22 were male and 24 were female teachers constituting teacher sample.

The students were administered the achievement motivation scale devised and standardized by Rao (1976). And the teachers were administered the teacher effectiveness scale devised and standardized by Arora (1978). School achievement was considered in terms of first, second and third divisions obtained on an average in the last three years (1983-85).

Results:

Besides other findings, it was found that there is a significant association between the type of school and school achievement. On an average the Missionary Schools has obtained 10 percent results over a period of three years with 86 percent first divisions, this is followed by the public school (Private Schools run under trust) which have obtained 97 percent result with 52 percent first divisions. The government schools have been found lagging behind these two types of schools in achievement.

The failures have been recorded in government run urban and rural schools only.

There is a significant difference in the achievement motivation of students in terms of types of schools in which they study. Specifically, the students of government-run rural schools have scored the highest motivation scores, followed by the missionary school students.

The public school students have scored lowest in the motivation but high in the school achievement.
There is no significant difference among four types of schools in term of teacher effectiveness scores. The correlation results have shown that as teacher effectiveness becomes higher, school achievement also becomes higher and vice-versa.

Dhar Reeta (1986) conducted a study during the year 1985 when the first batch of students in class 10\textsuperscript{th} were put to examination on the completion of newly introduced syllabus of NCERT in J & K. Before 1985, the 10\textsuperscript{th} class examination was not held on the basis of NCERT curriculum. Thus the samples of this study were the students from private and public schools of Srinagar city. A number of 25 students were selected from each sector and the target sample constituted 1285 students from a number of 50 schools (25 each from public & private schools).

The objectives of the study were as follows:

To compare private and government schools on Matriculation results, of 1985.

To find out the comparative superiority of one system over the other if any.

To find weakest areas of the weakest systems.

Hypothesis:

Government Schools are comparatively weaker than private schools in terms of matriculation results of 1985.

Null Hypothesis: There is no significant difference between boys and girls in their achievement in general.
Methodology:- The investigator had constructed a questionnaire comprising of two sections for the purpose of collecting general as well as specific information about the results of class 10th examination. The investigator has applied the ‘t’ test drawing inferences of mean differences. A correlation statistics was also worked out to find out the mean scores on mathematics & sciences. (in both private & government settings).

Results of the Study:

The pass percentage of government students was 45.8 as compared to the 87.5 percent of the boys belonging to private institutions.

The pass percentage of government girls was 44.8 and that of 81.8 in case of private girls.

The highest marks percentage was 81 in case of private schools and only 76 in case of government schools.

The private institution got 7 positions with an average of 80 percent marks as compared to 1 position from government schools with an average of 78 percent marks.

The number of first divisioner’s from private sector was more than govt. sector. It was 263 in private schools and only 48 in govt. schools.

The number of students failed in Math’s & Science was more in case of govt. schools than private schools.

On the whole it was found that:
The boys have done significantly better than girls (the level of significance = .01).

Private schools boys have performed significantly better than government schools boys (the level of significance = .01).

Similarly private school girls have done significantly better than government schools girls.

The hypothesis that govt. schools are comparatively weaker than private schools in term of Matriculation results of 1985 was approved as per the results of the study. But the null hypothesis that “there is no significant difference between boys and girls in their achievement in general” stood rejected as the data favoured boys in all situations i.e., boy did better than girls and private schools students performed better than government school students.

2.5 STUDIES RELATED TO ACHIEVEMENT AND SOCIO-ECONOMIC STATUS (S-E-S):

Catherine Juliana (2013)\textsuperscript{54} studied the effects of socioeconomic status on academic achievement in Open and Closed Societies. From one country to the next, the role of socioeconomic status differs in its relation to academic achievement. In this study she examined the role of country level factors, specifically open and closed systems, in affecting this relationship. The existing literature provides conflicting evidence, suggesting that open, democratic characteristics may either decrease or increase the effect of
socioeconomic status in a country, as may closed, non-democratic characteristics. Using multi-level models to analyze data from the Programme for International Student Assessment and the Quality of Government datasets, she found that the relationship is more complex. Results suggest that more closed, more corrupt countries have a smaller effect of socioeconomic status on achievement than more open, less corrupt countries. However, countries with a more unequal distribution of income also have smaller socioeconomic achievement gaps than do more equal countries.

Yvette Ford (2013) The study focused on high achieving minority students in order to gain deeper insight of factors that lead to high academic achievement of culturally diverse students (Hispanics and Blacks) from both high and low socio-economic groups. The data for this study included the 2012 CRCT of middle school students, and interview records with 4 students, 4 parents and 4 teachers. The quantitative data were analyzed and sought to answer the following research questions such as Does cultural diversity make any difference in the academic achievement of students from low socio-economic group? Does cultural diversity make any difference in the academic achievement of students from high socio-economic group? Does the gender of culturally diverse students make any difference in their academic achievement? Does the grade level of culturally diverse students make any difference in their academic achievement? The quantitative data revealed that no significant relationship existed between culturally diverse students’ socio-economic status and their academic achievement. The qualitative data were analyzed and sought to answer the following research
questions: What factors contribute to the high achievement of culturally diverse low socioeconomic student? (b)What factors contribute to the high achievement of culturally diverse high socioeconomic students? Through analysis of data from student, parent and teacher interviews, four predominate themes were determined: communication, cultural awareness, motivation, and teaching and learning supports.

Showkeen & Atieq (2013)\textsuperscript{56} this study explored the extent to which the socio economic status has the relation with academic performance in science stream among senior secondary school students. The descriptive survey research method was used for the study, the sample consisted of 100 students were selected by using stratified random sampling technique. A socio economic status scale developed by Dr. Gyanendra P. Srivastava (1991) was used for data collection. Moreover for academic performance in science, examination marks obtained by them in annual examination of previous class were noted down from the school records. The finding of the study revealed that there is a significant positive correlation between the Socio economic Status and Academic performance in science stream of senior secondary students. There exists a positive correlation between the upper class socio economic status boys with their academic performance in science stream at senior secondary level. There exists a positive correlation between the upper class socio economic status girls with their academic performance in science stream at senior secondary level. There exists an insignificant relationship between the lower class socio economic status boys with their academic performance in science stream at senior secondary level. There exists an insignificant relationship between the lower class
socio economic status girls with their academic performance in science stream at senior secondary level.

Spyros & Geoffrey (2011) studied the family background & school effects on student achievement. The study revisited this issue about the importance of schools in promoting student achievement and reanalyzed the EEOS 12th grade data using multilevel models. The sample included 12th graders in public schools in the U.S. in 1965. We sought to determine the predictive efficacy of school characteristics on student achievement net of the effects of family background. They used both regression and multilevel models to gauge school effects and compared our findings to those reported by Coleman et.al. Their estimates infer strictly cor-relational, not causal, associations between school characteristics and achievement.

The findings were found considerable and significant between-school variance in achievement, which suggests school effects. Similarly, the observed school characteristics used in the models explained a substantial proportion of the between-school variation in achievement; results also indicated that schools play meaningful roles in distributing equality or inequality of educational outcomes to females, minorities, and the disadvantaged.

Sharma D (2010) Investigated the impact of financial incentives on students’ school outcomes from a randomized field experiment in Nepal. Estimate of the impact of incentives is 0.09 standard deviation gains in average aggregate scores which is marginally significant. The result is meaningful given that several experimental and institutional factors in the
study make it less likely to find a significant treatment effect. Study contributes to the growing literature on academic incentives by recording household responses to the incentive scheme. It finds that incentives increase the proportion of students who receive academic reinforcement at home, either from a hired tutor or a household member. Finally, financial rewards do not have an adverse impact on students’ intrinsic motivation to learn.

Sackett.et.al (2009)\(^5^9\) studied whether Socio-economic Status Explain the Relationship between Admissions Tests and Post-Secondary Academic Performance. The Critics of educational admissions tests assert that tests measure nothing more than socioeconomic status(S-E-S) and that their apparent validity in predicting academic performance is an artifact of S-E-S. The authors examined multiple large data sets containing data on admissions and related tests, SES, and grades showing that (a) SES is related to test scores \(r \_ .42\) among the population of SAT takers), (b)test scores are predictive of academic performance, and (c)statistically controlling for SES reduces the estimated test– grade correlation from \(r \_ .47\) to \(r \_ .44\). Thus, the vast majority of the test–academic performance relationship was independent of SES: The authors concluded that the test– grade relationship is not an artifact of common influences of SES on both test scores and grades.

Marietta B.H. (2007)\(^6^0\) conducted the study of exploration of socioeconomic status and student achievements at Beverly elementary school. She found that all schools in Ohio are rated according to student achievement test score as a result of No Child Left Behind. The researcher used a QUAL/quant
approach to determine what impact socioeconomic status has on student achievement scores, taking statistical information from the Ohio Department of Education and surveying parents on what effects that they believe low socioeconomic status has on those scores. The family characteristic that is the most powerful predictor of school performance is socioeconomic status (S-E-S); the higher the S-E-S of the student’s family, the higher his academic achievement.

Okafor P.C. (2007)\textsuperscript{61} investigated academic success among academically high achieving students who will be selected in the select group of Schools in Anambra South County of Anambra State, Nigeria., who, despite the severe threat and challenging obstacles inherent in low socio-economic status (low- SES), and/or low parental educational attainment, miniscule parental job opportunities, and other possible unforeseen obstacles, record remarkable success in their education. The major data analyzed via interview and questionnaire from 100 students, to be selected from 50 schools in the Anambra South County’s 4 school districts, the sample students’ current English and Mathematics teachers and their parents. Finally the low S-E-S background student performed significantly better.

Scales et. al. (2006)\textsuperscript{62} examined reducing academic achievement gaps: The role of community service and service-learning. Three large and diverse data sets were used to study the relations among 6th-12th grade students' community service and service-learning experiences, academic success, and socioeconomic status (SES). Principals in high-poverty, urban, and majority nonwhite schools were more likely to judge service-learning's impact on
student attendance, engagement, and academic achievement as very positive. Students with higher levels of service/service-learning reported higher grades, attendance, and other academic success outcomes. Low-S-E-S students with service/service-learning scored better on most academic success variables than their low-SES peers with less or no service or service-learning.

Engweiler L.A (2005)\textsuperscript{63} studied the influence of socioeconomic status on academic achievements he has Given the emphasis of school evaluation through test scores in the No Child Left Behind legislation, it is imperative society understand what factors most influence test score achievement. Using the National Educational Longitudinal Study of 1988, approximately 21,000 eighth-grade students were examined to determine the effects of socioeconomic status on standardized test scores. Incorporating an analysis which broke down the model into three segments, components such as student role performance, school structure and resources, and family background were included. The multivariate regression results indicate that the strongest influence on a student’s academic achievement is their socioeconomic placement, creating a statistically significant effect of .334 upon test score achievement, net of other factors.

Barry J (2005)\textsuperscript{64} this study addressed the increasing importance of student test scores by examining the different factors that influence test scores. Composite test scores of tenth grade student from the educational longitudinal study of 2002 are examined using a four-part model which includes student role performance school, family, and peer factors. Ordinary
least squares analysis indicates that the strongest predictor of student test scores is socioeconomic status, resulting in a statistically significant increase in the standardized coefficient of .224 points.

Khan Z.N. (2005) studied that the effect of socio-economic status on academic achievement has shown sex differences in the present study. Boys from low socioeconomic status and the girls from high socioeconomic status have been found to achieve high. The present research has come out with sex-differences regarding high achievement in science stream at higher secondary level. The high achieving boys have been found impulsive, suspicious, shy, fickle-minded, conservative and dominant, but the high achieving girls have been found stable, trusting, venturesome, persevering, experimenting and submissive.

Bacold & Elizabeth (2003) investigated to know the effect of family background & school quality on low & high achievers. Quantile regressions are applied to Philippine data to estimate the differential impact of inputs on students at various points on the conditional achievement distribution. Variation in the students who attend schools outside their district, students who do not attend the nearest school, and students who transferred schools are used to identify these differential impacts and control for selection. Results suggest a policy of reducing student to teacher ratios has a positive effect on raising students’ math achievement, but may benefit high achievers more than the average or low achievers. In contrast, the impact of class size on English achievement is greater for the average or median student. The results regarding household background are as expected. Parents’ education
has a positive effect on achievement levels in both English and math, with father’s years of schooling having a larger effect than mother’s. Parents’ education, however, is not a generally significant factor in explaining gains in achievement. The coefficients of household income, measured by log(consumption expenditure per capita), are significant only for English achievement levels.

Rothman S (2003) studied the changing influence of socioeconomic status on student achievement in Australia. The data used in this study are from five studies. The first two studies, 1975 ASSP and 1980 ASSP, were major studies of the literacy and numeracy achievements of ten-year-olds and fourteen-year-olds attending Australian schools. There were 33 items on both the reading comprehension and mathematics tests in 1975, and 35 items on both tests in 1980. For the other studies—1989 YIT, 1995 LSAY and 1998 LSAY—the reading comprehension and mathematics tests each comprised 20 items, and were included to provide an indication of student achievement levels to be used as controls in studies of young people’s transitions from school. Each test was developed by the Australian Council for Educational Research (ACER) and contained a number of items common to at least one other test, including the ASSP tests. The inclusion of these common items allowed scores on all tests to be equated to a single scale; for the present study, this scale has a mean of 50 and standard deviation of 10. It shows that the changing socio-economic status has significant effect on academic achievement of students.
Bhuwal M.K (2003)\(^{68}\) Compared the effect of socio-economic status on the self perception and the scholastic achievement of SC & ST students in Primary class of tribal areas. He studied characteristics of self-consciousness, academic achievements of SC & ST Category pupils of various socio-economic status. Data collected through Self-consciousness scale by Asha Shukla, Socio-economic status scale by S.P. Kulshrestha Academic Achievement Test (Self-made). Sample was the 100-100 SC/ST students of class 5th. Mean, S.D. coefficient of correlation & critical ratio were used for data analysis. The findings are there is clear relationship of socio-economic status on self-consciousness & academic achievements. Low socio-economic status SC/ST people are not untouched by the developing schemes run for tribal by Govt. Social ignorance; superstition & orthodoxism have been removed from the society. Positive personality traits & self-consciousness have developed among the pupils.

Vinita B (2004)\(^{69}\) compared the effect of learning level on personality traits at upper primary level Tribal students of Residential and Non Residential School in Tribal areas. Objectives studied were to find out the learning level, personality traits, and effect of learning on personality traits of tribal students at upper primary level of residential and non-residential schools in tribal areas. Tools used were the Differential personality inventory by Arun kumar Singh and Ashish kumar Singh; self made text for learning level of all the subjects of class -7, Self made questionnaire for principal, Self made questionnaire for class teachers, Self made questionnaire for hostel wardens. The findings are there is positive effect of learning level on personality traits. Learning level of Residential students is higher than that of Non
residential students. The personality trait Decisiveness is also higher the personality trait responsibility in boys is higher than that of girls. “Emotional stability is higher for Residential students.” Friendship" is same for all students.

Qudah (1996)\(^70\) has studied the relationship between the academic achievement of students in Jordan State Universities and the Socio-economic Status (SES) of their families. A survey composed of questions regarding demographics, SES background, cultural factors and accumulated grade point average (GPA) was administered by four Jordanian professors in four State Universities in Jordan. Of 620 surveys made, there were 609 usable surveys which were analyzed using statistical package SPSS.

In this study statistically significant negative relationship were found between students GPA and their fathers’ and mothers’ income, occupation and education. However the relationship between parents S-E-S and student’s GPA were weak and without practical significance.

Heidt Harold. (1996)\(^71\) this Study includes measures of family norms in multivariate modal of academic achievement applied to a new nationally representative data-set, the National Educational Longitudinal study of 1988. The study finds that when measures of family norms omitted from the models, student socio-economic status, all strongly influence academic achievement but when measures of family norms are introduced. The private school control is markedly reduced in achievement for mathematics and proves spurious for reading, history and science.
Ganguly & Malabika (1989)\textsuperscript{72} conducted a study to establish the relationship between socio-economic status (S-E-S) and scholastic achievement in a particular setting. The objectives of the study were:

To investigate whether there is any appreciable difference in the scholastic achievement of upper, middle and lower socio-economic groups of students and,

To enquire whether different S-E-S groups of students in urban areas differ in their achievement scores from those in rural areas.

The Major Findings of the study are as under:

The mean achievement scores of the upper S-E-S group of urban areas in all the three groups of subjects differed significantly from those of lower groups.

In rural areas also the upper socio-economic group differed significantly in its achievement scores from lower socio-economic status group in all the three groups of subjects and,

The upper and lower socio-economic status groups of urban areas differed significantly in their mean score in these areas of achievement.

Ramaswamy (1988)\textsuperscript{73} conducted a study aimed at analyzing factors that are responsible for the scholastic performance of class X students. The study has set many objectives but one main objective that concerns us is to investigate the relationship between academic achievement and personality,
achievement motivation, self concept, study habits and socio-economic status in both high achievers and low achievers combined.

One, major finding of the study was that academic achievement was found significantly and positively related to personality, achievement motivation, self concept, study habits and socio-economic status is favour of both the sexes and secondly. Significant difference was found between high and low achievers with above mentioned variable.

Besides, the studies conducted by Harter (1999); David Richard, (1992), white (1992): Mok Magdalena et al (1997) : and Singh Satvir (1996) : which have already been discussed in proceeding pages establish a positive relationship of academic achievement with S-E-S.

Shukla Chandra Shekhar (1984) studied the academic achievement in relation to their socio-economic status and family size among primary school children.

The main findings of were;

To find out rural urban and sex differences in the academic achievement of primary schools children.

To study the relationship between socio-economic status of the family and academic achievement of primary school children.

To study the relationship between size of the family and the academic achievement of primary school children.
The sample was drawn from 33 rural and urban schools. The target sample consisted of 3000 children from rural schools and 1000 from urban schools. The mean, S.D., t-test and co-efficient of correlation was used for arriving at conclusions. The findings of the study include:

There is no significant sex difference in the academic achievement of primary school children.

There is no rural urban difference in academic achievement of primary school children.

Socio-economic status is positively and significantly co related with academic achievement at the primary stage of education.

Higher SES category students show significantly better academic achievements in comparison to meddler low SES category students.

2.6 REVIEW OF THE STUDIES

A critical analysis of the above mentioned studies give rise to certain substantive inquiries which need to be highlighted and addressed to for the sake of further investigation. Most of the studies whether conducted in India or abroad support multiple results leading to a phenomenon where the need of further research becomes imperative. In the area of school Inputs it has come to light that research studies found contrary and mixed results. The studies conducted by Bashir Sajitha (1994), Das R.C. (1974), Wilson
Kathreyn (1996), Magdelena Mek et, al, (1995) came to the conclusion that school Inputs (school infrastructure, condition & facilities) largely enhance academic achievement. As against this, studies conducted by Varghese, N.V. (1994), Richard David (1992) and Jere R. Behrman et, al, (1997) hold that school Inputs is not related to academic achievement. Nearly, all the studies reported above except that of Padhan A. (1988), and Qudah Ibrahim revealed that socio-economic status is the significant determinant of academic achievement. Similarly, except Bashir Sajtha (1994), Goldhber (1996) and John. F. White (1992), all the investigators referred in literature have found that in the school Inputs and academic achievement private schools are performing significantly better than Govt. schools and government aided private schools. However, on institutional expenditure and cost benefit analysis, an equal number of studies is in favour and against the private or public sector schools. Similar are the findings related to correlation of academic achievement with sex, & teacher – pupil ratio in the studies available so far.

The studies that examined the impact of expenditure on academic achievement also differ in their findings, like Harter (1999), James Estle et, al, (1996), and Richard David (1992), found that there is a significant positive correlation between school expenditure and academic achievement, while as in contrast the studies conducted by Chubb and Moe (1990), Zahid (1996), Duraiswamy (1999) and Tilak (1995) show that academic achievement is negatively co-related with institutional expenditure.
The contradictory findings of various studies mentioned above inspired the investigator to conduct a study of comparative nature between private and public schools with respect to certain variables like Inputs, expenditure, S-E-S and academic achievement, in the selected districts of Maharashtra state. There is already lack of research activity in the area of Secondary education in the state. Although a lot of research has been conducted outside the country on these variables, still all these variables in combination have not been studied extensively. In addition the investigator found that nearly all studies have confined the academic achievement to the scores obtained by the students in the subjects of math and languages in India and abroad. The other subject of prime importance which leads to intellectual and social development of personality like general science and social science had not been taken into account. Besides, most of the studies conducted so far are based on the survey reports.

Since, the private sector has entered is the delivery of education in a big way resulting in the mushroom growth of private schools in every part of country. But “the crucial issues about the involvement of private sector in school education, remains under studied in the contemporary educational research”.

Besides getting an overall view of research at Secondary stage of education, the review of literature helped the investigator in understanding the important variable like school Inputs and expenditure and the possible ways they can be classified. They helped in understanding the relationship
between achievement and other variables like school Inputs, school expenditure S-E-S, teacher pupil ratio etc.

The studies reviewed gave an indication that the concepts like school Inputs will be a very complex term to operationally define and measure. But at the same time they gave a clue that a comprehensive and measurable concept of school Inputs can be developed and also a measuring index.

The review of studies highlighted the need for such a study in the light of inconclusive and conflicting findings.

It also come to the notice of the researcher that the work so far done in this area in India is inadequate and the area needs further exploration especially at Secondary stage of education.

The review through some light on method of data collection, research design, method of tool construction, standardization and use of statistical tool for analyzing data, which helped the researcher in developing an appropriate methodology for the present investigation which will be discussed in the next chapter.
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