

CHAPTER II

A REVIEW OF RELATED LITERATURE

2.0 INTRODUCTION

A review of related literature is a preface to and a rationale for engaging in a specific area of research.

It is through an active process of examination and critical analysis of previously conducted researches in the same or related areas, that, the researcher constructs a meaningful context within the universe of already existing research. By critically evaluating and synthesizing previous perspectives, he/she can now establish the context and structure of the present topic or problem under investigation.

This endeavor enables the researcher to construct the central argument (the rationale behind this study) and establish the present research as informed, coherent and necessary.

Thus, Literature Review is the *raison d'être* for the present study

A review of related literature revealed the following -

In the continued pursuit for EFA – Education for All, both National and International assessments show that performance levels are a matter of concern in low and middle-income countries. In fact, many studies are evidence of the fact that in many parts of the world an enormous gap exists between the number of students graduating from schools and among these students, those who have barely managed to master a minimum set of cognitive skills – thus schooling does not really benefit a large population of those who attend (UNESCO, 2005).

The implication is that both quantitative and qualitative aspects need to be given equal importance if the objectives of enrollment, retention and satisfactory performance are to be realized.

Buch and Buch (1983) have reviewed more than 200 studies, carried out at various Indian universities and other research institutions, focusing on the determinants of learning outcomes and they found that the correlates of student performance were

classified into three main groups - family characteristics (parents' education and the family environment), school characteristics (facilities and equipments, qualification and training of teachers,) and individual characteristics.

The international scenario too revealed that policies for raising school quality would eventually fail if important complementarities between individual components of quality were overlooked. The ten propositions about educational quality as given by Ken Gannicott and David Throsby in their study *Educational quality in Economic development: Ten propositions and an application to the South Pacific (1992)* were

- Class size does not matter much,
- Trained teachers do make a difference,
- Provision of instructional materials is one of the most cost effective ways of raising the quality of education,
- Education is most effective if initial instruction uses the mother tongue,
- Lavish buildings and equipments will not raise quality,
- Curriculum reform will not necessarily raise educational quality,
- Examinations are a useful way of monitoring school quality,
- Healthy well fed children learn better,
- Amount of learning time affects educational outcomes for individual students,
- Quality depends on good decentralized educational management.

Thus,

In the production of desired educational outcomes, the various aspects of quality interact in a variety of ways, some obvious, some more subtle (Lockheed and Verspoor, 1990).

The following literature survey focuses on all the above mentioned aspects and an attempt has been made to develop a holistic perspective of the nature and findings of these studies and thereby to arrive at a rationale for the present study. In view of the variations in the focus of the studies reviewed, they have been categorized in terms of the following

- School Inputs
- Teaching – Learning Practices (Process)
- Learning Outcomes (Output)

2.1 STUDIES RELATED TO SCHOOL INPUTS

Effective transaction of the curriculum and other inputs are possible only if the school atmosphere is conducive to learning. Organization variables are significant because it is within these that the learning processes take place and a congenial atmosphere is necessary if we expect children to come to school and be present for all the school hours.

Research studies have proved conclusively the importance of Infrastructural facilities in the effective functioning of the education system. Purkey and Smith (1983) found that organizational variables were the context within which the process variables operate and thus, both were equally important for school success. Studies have proved that physical facilities in schools significantly impact the quality of education being imparted and also reduce stagnation (Gogate, 1984; Eswaraprasad and Sharma, 1982; Sarma, 1991).

The study conducted by Govinda and Varghese (1991), on available infrastructural facilities revealed that infrastructural facilities indeed play an important role in providing a conducive environment; impacting the learners' achievement as well as contributed to the overall school quality. They also concluded in a future study (1993) that students in schools with good infrastructural facilities scored twice as high in the subjects of Hindi and Mathematics than those students studying in school with average infrastructural facilities.

Similar studies (Shukla and others, 1994; Saxena, Singh and Gupta, 1995) also found that infrastructural facilities prevalent in a school were important correlates of student achievement. It is interesting to note in the same connection that The Tenth Five Year Plan too acknowledges that poor quality of primary education is one of the reasons for student stagnation and drop-outism and consequently poor achievement scores; and thus improving the quality of infrastructure was a priority for SSA. For the period 2001-2005 infrastructure had been given due priority with plans to start 1.37 lakh new schools, 80,000 new school buildings and 1.92 lakh additional classrooms, 1.57 lakh toilets and 1.12 lakh drinking water facilities.

Despite this understanding, the scenario with respect to infrastructure appeared to be in need of attention.

In the study regarding the status of Primary Education in selected urban areas of Gujarat, Buch and Sudame (1990) found that many of the Primary schools were conducted in rented buildings and while most of them did have the facility of drinking water, they lacked toilets, library and laboratory facilities. Their findings also revealed that a large number of schools faced shortage of space and were located in areas characterized by heavy traffic, noise pollution, unhealthy surroundings and frequented by antisocial elements.

Gupta and Gupta (1992) conducted a study in the three States of Gujarat, Rajasthan and Tamil Nadu – their study revealed that in these States, 83.8% of schools had at least two all weather rooms; 55.6% schools had verandahs while only 9.7% schools had toilet facilities. Also, a survey of schools in low literacy districts in States entering the District Primary Education Programme found that while schools did have classrooms which were mostly of good quality in Madhya Pradesh, Maharashtra, Karnataka and Kerala, the classrooms were crowded, physical space was limited and other school facilities were in short supply (World Bank, 1990).

In addition to the above, i.e. infrastructural facilities, the availability of ‘enabling inputs’ and the effectiveness with which they are employed, are all significant inputs to the quality of the present system. Keeping this importance in mind, the National Programme ‘Operation Blackboard’ was launched in India, in 1987 and under this programme schools were provided minimum essential facilities.

The significance of these ‘enabling inputs’ has been researched and the conclusions were as follows –

Heyneman (1983) found that better quality teaching and learning tools particularly school textbooks had a substantial effect on student learning; also, among the correlates of student performance, school characteristics such as the available facilities and equipments made a significant impact (Buch and Buch, 1983). Regarding the same, i.e. usage of teaching learning material, it was reported that Primary Schools should have good library, including relevant reading material, which would be both stimulating and interesting to these young children (Misra, 1989).

International research too has proved that provision of instructional materials is one of the most cost-effective ways of raising the quality of education (Gannicot and Throsby, 1992).

Yet, some of the studies conducted in this area reported a scenario quite the opposite – studies have shown that many primary schools did not have essential learning facilities such as the blackboard (Mali, 1984; Chakrabarti, 1988) and certain other minimum facilities like teaching aids and drinking water arrangements were facilities which also needed serious attention (Chakrabarti, 1988).

Panigrahi (2002) in a Social Assessment Study of Vadodara District reported that educational facilities such as laboratory, library and other much needed facilities (stationery, etc.) were very inadequate. A significant outcome of the study conducted by Packkiam (1990) on the implementation of Operation Blackboard in Tamil Nadu was that 83% Primary Schools did not have adequate physical facilities and the materials provided under this scheme were more frequently and widely utilized by teachers in Private Schools than those in Government schools. Chavare (1991) in his study of the problems of students who had dropped out of the Pune Municipal Corporation too reported that there were inadequate aids and equipments and also unsatisfactory seating arrangements. In this very connection, inadequate physical facilities in Primary Schools namely, Library, Store Rooms, etc. was reported by Ralte (1992) as well.

International experience too has shown that relatively modest instructional materials actually promote learning. Materials such as textbooks, libraries and classroom instructional materials are significant determinants of achievement in low income and middle-income countries.

In a policy paper on primary education issued by the World Bank (1990) it was highlighted that children's learning is a function of family background and school inputs namely the curriculum and learning materials. Fuller (1994) found that material inputs were related to achievement in the Third World and especially those inputs which were directly related to the instructional processes were consistently associated with higher student achievement - the same study found that 'costly' inputs were not related to higher levels of achievement.

The UNESCO Global Monitoring Report (2005) stated in the same connection that *other things being equal, the success of teaching and learning is likely to be strongly influenced by the resources made available to support the process and the direct ways in which these resources are managed. It is obvious that schools without teachers, textbooks or learning materials will not be able to do an effective job. In that sense,*

resources are important for educational quality – although how and to what extent this is so has not yet been fully determined. Inputs are enabling in that they underpin and are intrinsically interrelated to teaching and learning processes, which in turn affects the range and the type of inputs used and how effectively they are employed. The main input variables are material and human resources and the governance of these resources is an important additional dimension.

In the Indian classroom situation especially, the Textbook is the single most important instructional aid since it is the most predominantly used one. The studies conducted by Govinda and Varghese (1993) and Saxena, Singh and Gupta (1995) clearly highlight the significance of text book in enhancing students' learning. Also, its usage facilitated improved retention and consequently had an overall positive impact on the achievement of the pupils (Gupta and Gupta, 1992).

Regarding the availability and utilization of teaching – learning material, Packkiam (1990) reported that in comparison to Teachers working in government Primary Schools, Teachers working in Private Management Schools utilized these materials (science kits, library books, classroom equipments and other equipments) to a greater extent. But, in contradiction to this it was found that while teachers were found to be genuinely interested in teaching and were using the teaching learning materials supplied to them (Gupta and Gupta, 1992) significant teaching learning material such as reference books, audio visual aids, etc. were not available in the schools (Gonsalves, 1989).

Despite large increases in real per-pupil spending, research studies have revealed that the overall systemic performance has not significantly increased. Particularly in the Indian context, it is important to consider not only the 'physical distance' but also the 'social distance' that the child needs to cross before wholehearted participation becomes a reality (PROBE, 1999).

The first necessary step in this direction is pre-schooling.

Early Childhood Care and Education is aimed at the physical, cognitive and social development of children and refers to a wide range of programmes prior to the primary grades and in preparation for the same. Preschool going children do need varied language experiences and also definitely need preparation to learn the formal school tasks and thus the importance of ECCE.

In a policy paper on primary education issued by the World Bank (1990) it was highlighted that children's learning is a function of family background and school inputs. Among family background inputs, a significantly influencing factor was the child's pre-school experience.

Studies have revealed the positive impact of these programmes – that these programmes contribute to beneficial child development outcomes, set the foundation for life-long learning and instill desirable learning habits, social skills and values (Mandke, 1989; Kaul et al 1992; Pattanaik, 1991). Research studies conducted in this area have revealed that parents from all walks of life were found to value pre-primary schooling for their children as it prepared them for formal schooling. Even parents, whose children did not attend pre-school, voiced their feelings in support of the same that pre-primary training equipped them for better adjustment and learning readiness in school (Surjeet, 1989).

Kaul, V et al (1992) in their study titled '*Starting children too early on number work*' concluded that children exposed to the number readiness programme demonstrated better understanding of numbers in the successive years. In yet another study on a similar issue Kaul, V et al (1992) studying the *Impact of ECCE on retention in Primary Grades* found that children with ECCE experience were found to have a better retention rate than children who had direct entry into schools. Pande (1989) in his study on the impact of pre-school education on the cognitive development of children found that the preschool experience did have a positive impact on the cognitive scores of the children especially in the 4+ and 5+ classes. Pattanaik (1991) too concluded that the non-pre-schooled children were found to score lower in academic tasks.

Srivastava, Sushila (1992) studied the impact of exposure to the science oriented educational toys on the concept and language development of pre-school children. The study revealed that exposure to these was found to be positively related and considerably improved the concepts of science and, also benefited the language development of children.

Not only academics, studies highlight that there was a visible impact on *the social behavior* as well - it was also found that children having gone to the pre-school, exhibited positive social behavior (Nagalakshmi, 1991).

Berlinski, Galiani and Gertler (2006) in their study investigated the impact of pre-primary education on subsequent primary school performance in Argentina and concluded that students performed better academically and also that preprimary school attendance positively affected student's self-control in the later grades as measured by behaviors such as attention, effort, class participation, and discipline.

Despite the seeming benefits, there were still cases where pre-primary education needed attention and Maiyani (1989) in his study of the development of Pre-primary education in Gujarat during the post-independence period concluded that the existing set-up of pre-primary education was not satisfactory, the number of trained teachers at this level should be increased and also that the quality and quantity of pre-primary education in Gujarat was only average and needed serious consideration.

Once enrolled into school, a certain minimum number of years are essential if children are to master basic skills. Thus, it must be ensured that children who are once enrolled continue in school long enough to acquire these basic skills and a certain period in school alone would determine this sustainability. However, due to social and family compulsions children are often forced to leave school and then the minimal learning that has taken place is eventually lost. Thus, reducing dropout rates is crucial. (UNESCO, 2005).

Regularity in school was often affected due to the family's demand for the child's participation in the family's economic activities. The PROBE too reported that children's attendance in schools in India was noticeably low during peak agricultural seasons. In a study conducted by Batra (1991) on *How children think and learn* concerning grades I and II in the Betul district of Madhya Pradesh, it was found that children did not want to attend school because they found it boring, irrelevant and meaningless. Studies also proved that economically backward parents preferred their wards to work and earn rather than go to school and learn. It was found that a majority of students did not get time to study as they were required to do household chores and eventually not getting any support or encouragement, tended to drop out of school. (Chavare, 1991). In a similar study conducted to identify problems related to education in upper primary level, Sarma, Dutta and Sarma (1991) found that fifty four percent pupils were found to be regular in attendance except for sudden illness whereas 33% were irregular only because they had to assist their parents in the household work.

Shukla and others (1994) in their study reported that children whose families supported their regular attendance in school scored higher grades than those who attended school with lesser regularity, in 9 of the 15 largest states. The implication here was that one of the significant ways families could strengthen their child's learning was by supporting regular attendance of their children.

Together with regularity of attendance, student achievement is significantly related to quality of teachers. In most developing countries, Teachers are the principal instructional instrument and consequently an essential task would be to improve the preparation, motivation and deployment of teachers. 'Investment in Teachers is critical as the Teacher is the vital input in the instructional process. The Teacher's subject knowledge is a key factor in their effectiveness. The quality of this very important component can be ensured by emphasizing formal educational attainment, pre-service training as well as continuous in-service training. Conditions of service too play a determining role' (UNESCO, 2005).

Buch and Buch (1983) have reviewed more than 200 studies carried out at various Indian universities and other research institutions focusing on the determinants of learning outcomes and they found that among the correlates of student performance a significant correlate was the qualification and training of teachers.

Research studies have proved that Teacher education, particularly the number of years of pretraining general education was related to student achievement. The Teacher's average number of years of education was positively related to achievement in many cases (Saxena, Singh, and Gupta, 1995). A similar finding was quoted by Govinda and Varghese (1993) that Teacher educational attainments were a significant influence on student's academic achievements in both advantaged and disadvantaged regions.

Among the researches conducted internationally, Fuller (1990) concluded that the factors that related to achievement in the schools were found to be material inputs in the Third World countries; teachers and their educational qualifications and their training. Low levels of teacher quality were directly linked to low levels of student achievement in schools (Gannicot and Throsby, 1992).

It was also found that despite relatively high levels of teacher's formal pre-service education in India, many teachers lacked a strong foundation in the subjects they taught. The study of Bashir (1994) revealed that only 50 percent of grade 4 Teachers who were

tested could respond to 80% of the questions in a test which was meant for grade 4 mathematics students. Ramkumar (1998) too concluded that there was an urgent need to raise the minimum qualifications of teachers and especially the appointment of subject teachers. He recommended that in service training must be strengthened in order to achieve this. The same study also revealed that a majority of Teachers possessed just the minimum general and professional qualifications, the standards for which were fixed long ago.

Thus, there was an urgent need to look into the qualifications of Teachers and their consequent training.

However, research has also proved that teaching experience was not an important predictor of student's achievement. Teachers' experience was negatively co-related with student's achievement and in some cases quite significantly (Shukla and others, 1994; Saxena, Singh, and Gupta, 1995). What did truly impact students' achievement was the teacher's knowledge of the subject (Fuller and Clarke, 1994; Hanuchek, 1994).

Jones, Mooney, Harries & Tony (2002) in their research study focused on what trainee primary teachers might need to know about geometry in order to teach the geometry component of the mathematics curriculum effectively and confidently. Their findings revealed that geometry was the area of mathematics in which trainees performed most poorly in initial baseline tests and had the least confidence to teach. Hence, this was the area in which trainees needed to make most progress if they were to gain qualified teacher status.

Thus, teachers' training made considerable difference in terms of teaching style and classroom management and training of teachers was necessary to improve the academic performance of primary grade children. (Govinda and Varghese, 1991).

Misra (1989) concluded that better qualified and trained Primary Teachers should be appointed. He further suggested that improvement in teacher training may be brought about by re-designing the syllabus with greater emphasis on skill oriented education. Yet another study found that although training had been imparted, almost fifty percent of the teachers did not apply training methodologies in the actual teaching learning situation. (Sarma, Dutta and Sarma, 1991). The same group conducted a study on upper primary level children and this study too revealed that fifty percent of the trained teachers did not

apply the training methodologies in class and the reasons given were – want of time, want of teaching aids, a very tight syllabus and very significantly that suggestions were not applicable in actual class situations.

Everage (1997) in her study on the effect of staff development concluded that many early elementary teachers would need staff development to adequately and effectively teach and assess Mathematics, according to the mandates of the 1990s. Also recommending an intensive training programme for Gujarati languages were Mulwani and Joshi (1990) in their study of student's academic achievement of class III of South Gujarat. The researchers reported that the achievement level of South Gujarat students was highest in Mathematics but lowest in Gujarati.

The study conducted by Vyas (1992) revealed that teachers were trained and qualified but that there was a lack of interest in teaching on their part.

SOME OBSERVATIONS AND IMPLICATIONS

The review of studies in this area i.e. Inputs, proves that indeed there is emphasis given to the provision of a conducive learning environment and so quantitative aspects have been given due focus.

The studies done in this area revealed the important role played by Inputs, the quality of the existing infrastructural facilities, the significant bearing infrastructure had on enrollment and retention and the correlation between school facilities and achievement. In this section were also explored areas such as pre-schooling and its role in inculcating fundamental academic and social skills, barriers to student enrollment, the important role played by the teacher – qualifications, years of experience and the training programs undergone.

To elicit data these studies have used techniques such as observation, interviewing and correspondingly tools such as observation schedules, interviews and group discussions involving Functionaries and Beneficiaries who were involved in the system. Most of the studies were survey type enquiries with documentary survey also constituting an important source of data.

Statistical techniques such as percentages and content analysis were frequently used for data analysis.

However, these were all macro level studies implying the need for a more in-depth treatment. Parallely, one needs to have studies which consider all aspects of the 'input'. Thus, an analytic-synthetic approach is needed. Often, studying an issue in isolation gives an in-depth understanding of the same but we become oblivious to the interdependence of the different factors that comprise and play important roles in the system. This interdependence needed to be explored.

2.2 STUDIES RELATED TO SCHOOL INSTRUCTIONAL PROCESSES

Teaching and learning are at the heart of any school's activities and while outcomes are important so also are the processes that lead to them (Gray, 1990).

While the enabling inputs discussed above are closely related to and deeply impact the schooling processes, it is the actual teaching and learning processes (as these occur in the classroom) including student time spent on learning, assessment methods for monitoring student progress, styles of teaching, the language of instruction and classroom organization strategies that eventually determine the quality of learning (UNESCO, 2005). Thus, an emphasis on student-centric methodologies and the consequent change in the role of the teacher who were now conceiving their roles more as facilitators, guides and a co-partner in learning activities (Prasad, 1990).

In a policy paper on primary education issued by the World Bank (1990) it was highlighted that children's learning is a function of family background and school inputs. Among family background inputs, the most influencing were the child's pre-school experience and the school related inputs were the curriculum, learning materials, instructional time and the teaching methods.

Weindling (1989) identified factors that affect the school quality namely – classroom instructional time, punctuality in the conducting of the instructional process, minimum and required disciplinary interventions, continual monitoring of student progress, staff development programmes, an emphasis on student achievement and finally community interaction and support. The actual manner in which classroom transaction takes place has a significant bearing on achievement. Factors such as time spent on teaching, learning, explanation of concepts with frequent use of the blackboard, motivating students by asking questions, revision / recapitulation of previous concepts, regular assignment of homework by the teacher and possession of textbook, were all

significantly related to academic achievement. Thus, classroom transaction had significant co-relation with students' academic achievement (Govinda and Varghese, 1991).

The same authors in yet another related study in 1993, found that in schools where students recorded higher levels of academic achievement, the following teaching practices prevailed - explanation of new concepts with frequent use of the blackboard; positive classroom interaction, opportunity given to practice the class work, regular assignment and correction of homework and recapitulation of previous concepts.

Results from DPEP baseline studies also show that students whose teachers regularly monitor their academic progress and give continuous feedback, ultimately show better academic achievement. Saxena, Singh and Gupta (1995) too reported that teaching practices found to be positively associated with students learning included assigning of classroom activity for Math; assigning and conducting reading and dictation for language achievement, regular assigning of homework, evaluation and feedback.

In fact, few international researches have given importance to a 'thinking-together' approach where talking and thinking together while using computers can develop reasoning skills and improve learning. Mathematics software, especially team strategy games played on the computer, provide a tremendously motivating context for children to learn how to think. This may prove instrumental in better understanding of concepts and enhance future learning (Sams, Dawes, Wegerif, and Mercer, 2004).

In the same line of thinking, Wegerif and Dawes (2004) in their book *Thinking and Learning with ICT: Raising achievement in primary classrooms* stated that Primary school teachers need to incorporate the use of computers in their daily lesson plans. In this fascinating book, the authors outline a strategy for enhancing the effectiveness of computers for teaching and learning with an emphasis on raising pupil achievement in the core subject areas; developing collaborative learning in small groups; using group discussions as a way of improving general communication, as well as thinking and reasoning skills. The approach is to use computers as a support for collaborative learning in small groups and the book presents ways to prepare pupils for talking, learning and thinking together around computers. The authors concluded that thinking and Learning with ICT would be a valuable resource for primary teachers and student teachers. In yet

another study, Jones & Mooney (2003) suggested that until spatial and visual thinking is given greater status within the mental and oral segments of primary mathematics lessons, and until more curriculum space at primary level is devoted to geometry, children may well continue to have insufficient opportunity to develop fundamental visualization and spatial reasoning skills that are so important in an increasingly visual world.

As in mathematics, so also in languages, the classroom environment functioned as common ground for learning based on the development of shared frames of references, a shared communication system and collaboration. The talk among children, both with and without the teacher's involvement served to direct and extend their learning. Their own language and the language of others became links for children between what they knew and what they were learning (Troyer, 1992).

Keeping in mind the relevance and importance attached to student-centric methods today, the research study conducted by Hitt (1997), gave emphasis to the pre-service training programme in training teachers for the academic programs to follow later and devise and implement methodologies which emphasized student-centric methods for greater student participation in the learning process. However, Sarma (1991) found that despite undergoing the training programs, a significantly large number of teachers did not apply their training methodologies in class and the reasons cited were want of time, want of teaching aids and training not applicable in the regular class situations. In the event of teachers not applying their training to the actual classroom transactions, the learning environment gradually became passive which was detrimental to the overall understanding of students and thus more student centric methods needed to be undertaken for their academic improvement. (PROBE, 1999).

The PROBE Report also found that the child's natural curiosity and propensity to constantly ask questions were all silenced by the school environment and gradually they assumed the role of passive listeners.

With regard to the important role played by teachers themselves, research evidence shows that how they spend their time has a major effect on learning outcomes. Monitoring how well students are progressing requires time and energy in the classroom, beyond the time spent teaching. Ability grouping by whole classes is ineffective, particularly for less able children, but grouping for the specific skill being taught works

well for all children, particularly in reading and mathematics. Teachers' subject mastery and verbal skills, their expectations of students and their own passion for learning are significant factors for school quality. (UNESCO, 2005).

Halim (2004) studied the instructional processes in both Bangladesh and West Bengal mathematics classrooms and concluded that a majority of mathematics teachers from Bangladesh, 96.6 % and 73.4% teachers from West Bengal do not use any lesson plan in classroom instruction; teachers from both the countries use mathematics textbook during the teaching-learning process in the classroom; a vast majority of teachers from West Bengal (87%) introduced the lesson based on previous knowledge of the pupils and other relevant activities; 45% teachers from Bangladesh adopted teaching practices following 'general to specific' while 58.4% teachers from West Bengal adopted teaching practices following 'concrete to abstract'.

Regarding the extent of pupil participation, it was found that while in Bangladesh it was only 5%, pupil participation was high in West Bengal (44.8%). The responses given by pupils in West Bengal were 93.4% satisfactory.

Most mathematics teachers in Bangladesh and West Bengal used clear understandable language through specific words and audibility was maintained throughout teaching. The most predominantly used instructional aid was the blackboard – in Bangladesh, 41.6% teachers used the BB always while 28.2% used it frequently. In the case of West Bengal it was found that 15% teachers used the BB always while 65% used it frequently. In both the countries an interesting revelation was that 30% teachers used a BB rarely. Only 10% teachers from Bangladesh used teaching aids while teaching; while 45% did so in West Bengal. 90% teachers from Bangladesh and 96.6% teachers from West Bengal gave some classroom assignments to work in the classroom; 63.2% teachers from Bangladesh and 78.4% from West Bengal gave homework; 71.8% teachers from Bangladesh did not summarize the lesson but 86.6% teachers from West Bengal did summarize the lesson at the end via questioning and problem solving.

Finally,

In addition to the 'quality' of the instructional time, the 'quantity' of time spent on actual instruction was also considered to be very important and thus longer instructional time was imperative for improved educational achievement (Gannicot and Throsby, 1992).

SOME OBSERVATIONS AND IMPLICATIONS

The review of studies on 'inputs' reveal that despite giving priority to provision of the basic facilities and thereby ensuring a conducive learning environment, there is yet another truth that mere provision alone would not suffice – one would also need to ensure their proper utilization in the instructional process and maintenance thereafter.

Studies reviewed under this section relate to the 'process' factors that play a significant role in school quality namely instructional time, teaching strategies, teaching aids used, assignment of homework, regular assessment and remedying of learning difficulties. One of the significant revelations in this section was the increasing use of ICT in the instructional processes as an effective instructional tool to aid in learning and improve student understanding.

To elicit data, these studies have used observation technique and observed samples of the total population taking into account the issue of generalization of findings.

However, one needs to view the inputs and the manner of implementation of these in the instructional process. Also, the most effective tools here would be participant observation but more non-participant observation to capture the realities of the instructional processes which are *often* artificially structured in the presence of an observer. Once again, mere provision of inputs will be a meaningless exercise unless studies view it in continuity.

2.3 STUDIES RELATED TO LEARNING OUTCOMES

The learning outcomes as seen in children of Primary grades, are determined by many factors namely regularity of attendance, school inputs as well as the actual classroom transactions. Research studies conducted on the achievement levels of students in Primary grades however, do not show too promising a picture.

Dave and others (1988) reported that the average grade 4 achievement was thirty five percent (35%) in language and thirty two percent (32%) in Mathematics compared to thirty – five (35%) percent which was the passing mark. About seventy percent (70%) of Grade 4 students and sixty percent (60%) of grade 5 students from schools in a privileged urban zone of Madhya Pradesh had not even mastered competencies expected

of grade 2 students. Similarly, conducting a study of achievement in Bengali language and Mathematics at the end of grade 4 in 15 districts of West Bengal, Roy, Mitra and Roy (1995) reported that only twenty percent (20%) of the students obtained the minimum expected score in both subjects. Other studies too have recorded low and average achievement levels for all grades. (Saxena, Singh and Gupta, 1995). Yet another study conducted on achievement levels in the two subjects, revealed that class IV students of Vadodara District, under the MLL approach to teaching, scored better in Mathematics than in Gujarati.

International studies too report that although in middle and low income countries National Enrollment ratios are high due to preventive measures taken, only a very small proportion of school leavers actually achieve minimum mastery levels as determined by their own educational standards. Thus, for example, in Malawi, Africa, where about ninety percent (90%) of children attended primary school in the mid-1990s, only about thirty percent (30%) stayed in school to grade 5, and as few as seven percent (7%) achieved the minimum acceptable reading standards in grade 6. Although this may be something of an extreme case, most Sub-Sahara African countries record that less than one-third of their children achieved minimum mastery levels in grades 4 to 6, although the average NER for the countries was sixty-five percent (65%) (UNESCO, 2005).

Academic achievement was significantly positively related to regular attendance. Investigating the academic causes of backwardness in Math, at the Primary grades, it was found that irregularity in attendance was a significant co-relate (Lulla, 1966). Not only individual regularity but Institutional functioning too had a significant impact on achievement.

Research studies by Govinda and Varghese (1991) and Sarma et al (1991) too concluded that regular attendance and academic achievement were positively co-related. The study conducted by Rao (2003) to identify causes of high repetition also found that frequent absence was a major course for poor achievement and consequently grade repetition. Dutta and Yumnam (1998) concluded that instructional time was a critical input in the learning process and schools exceeding in their allocation of holidays was a matter of grave concern.

Thus, higher cognitive achievement is strongly correlated with the likelihood of staying in school longer and higher-quality schools and school systems tend to have lower rates

of dropout and repetition than others. The potential benefit is not insignificant: for schools that are dysfunctional and have high rates of grade repetition, some improvements in school quality may be largely self-financing because they reduce the average time completers spend in school. (UNESCO, 2005).

In addition to academic regularity, evidence from research conducted primarily in low-income countries are evidence of the fact that there are indeed strong links between school resources and academic performance of the students.

Studies from India, Kenya, Philippines and South Africa show that academic achievement levels were significantly improved by the provision of textbooks, other supplementary learning materials and often the provision of child-friendly remedial education provided by the system of para-teachers which prevails in India. These studies are indicative that these resources are indeed extremely important to the quality of schooling especially in resource poor countries where lavish expenditures are prohibitive on account of other unavoidable expenditures. (UNESCO, 2005).

The Teacher played a crucial role in the academic achievement of the child. Shah (1985) in his study made a psychometric exploration to study the relationship between achievement in arithmetic and related factors and concluded that teachers in these schools had to necessarily teach all subjects and had no special training in the teaching of Math which directly affected the achievement of students in the subject. Govinda and Varghese (1991) found that performance of the students in schools with one teacher per grade was better than that with multi grade teaching. The same team reported that performance of students was better when taught by specialist teachers than when taught by teachers teaching all subjects.

Post instruction, the mode of evaluation too played a significant role in the identification and remedying of learning disabilities.

Desai (1986) concluded in his study that the abolition of the examination based promotion system for the lower primary grades had negatively affected the learning in these children. Mishra (1989) concluded that a common central examination would help to improve the standard of students and should be taken up. Panigrahi (2002) found that despite poor academic performance, there was no provision for extra coaching or

guidance for all children in general and backward students in particular. English, Mathematics and Social Studies continued to be difficult subjects for students.

The sex of the student did not necessarily influence the achievement either in language or mathematics (Buch and Sudame, 1990), but, a significant co-relate of achievement was the parental educational qualification, according to Govinda and Varghese (1993). Shukla and others (1994) too found that parents' education, the family's socio economics status, facilities for learning at home and parental support for their child's education significantly correlated with their children's academic achievement.

Similarly, analyses of the DPEP baseline data showed that in certain low literacy districts parents' education and father's occupation had significant positive effects on students' achievement in both Mathematics and language (Govinda and Varghese, 1993). Quite on the same lines, Rao (2003) concluded that migration of parents, illiteracy, insistence on domestic work and a general ignorance and indifference towards their children's academic performance was a major cause of their poor academic achievement. Sarkar (1983) in his study found that home variables such as educational environment at home, social background and parent-child relationship showed a significant difference among high and low achievers.

SOME OBSERVATIONS AND IMPLICATIONS.

Achievement – both curricular and extra-curricular is an indicator of the efficiency and effectiveness of the educational system.

Studies reviewed in this section have attempted to determine achievement levels and also determine causal factors – thus emerged influencing variables namely school factors, social factors, human resources and their characteristics, learner characteristics, socio-economic background of the learners and the consequent impact of all these factors. While some influences positively impacted the system, the negative ones nullified all the beneficial attempts. Eventually, the significant fact that emerged was poor achievement in the learners despite all attempts to improve the situation. Not only causal factors, post-evaluation endeavors have also been studied in order to determine what remedial programs were being conducted to address the issue of poor performance.

In terms of research techniques employed, most researchers have adopted random sampling methods and achievement tests were used to elicit data with respect to student performance followed by questionnaires, interview schedules and documentary surveys. Statistical techniques used for data analysis were percentage and multi-variate analysis to identify the significant variables influencing learner achievement.

In conclusion, these research studies have viewed causal factors and some have studied the entire range of influences that impact student achievement eventually. However, such in-depth studies of comprehensive coverage were found to be rare.

2.4 OVERALL OBSERVATIONS

A review of all the sections revealed that research studies have indeed taken into account the significant variables that impacted the system i.e. input-process-output. However, most of these studies have focused on singular aspects i.e. either input or process or output. What is often required is a holistic picture to understand the significant components and their independent and interdependent roles and such studies taking up all aspects of the educational system giving a holistic picture, was found to be rare.

This became the genesis of the present study.