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SCHOOL QUALITY

Perspectives from the Developed and Developing Countries

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INTRODUCTION

Background and Rationale:

Concern to improve the quality of education in schools has started receiving the highest priority in almost all countries throughout the world. Earlier, greater emphasis was being placed on ensuring access to complete and free primary education for all the children. However, with the tremendous growth in school enrolments throughout the world, priority given earlier to educational expansion and access is now being replaced by plans and policies that are calling for a higher quality of schooling. This concern has become universal in the developed as well as in the developing countries, in those that have achieved total access as well as in those still striving for access. In fact it has now been established that access and quality are not sequential elements, and a number of international organizations have visualized the role of quality as being instrumental in improving access (Unesco 2003, Unesco 2005).

The Global Monitoring Report 2005 highlights the importance of the quality of education provided in schools, seen in terms of the teaching - learning processes and how much pupils are learning. First of all, quality schooling, generally speaking, means higher life time incomes. By enhancing students' cognitive skills, improved school quality directly influences their performance in the labour market and hence relates to individual earnings, greater productivity and economic growth. Increased attainment by learners also results in higher completion rates at all levels of schooling and consequent reduction in rates of repetition and drop out (Unesco 2005). Apart from influencing individual productivity and income, higher school quality also has a strong impact on economic growth of countries as some studies have shown (Hanushek and Kimko 2000; Lee and Barro 2001). Thus, the quality of the labour force (as measured through mathematics and science test scores) could be regarded as an important determinant of economic growth and could have the potential to alleviate poverty. Schools are also instrumental in developing desirable non-cognitive outcomes among students that may contribute to economic success such as honesty, reliability, determination etc. There is also good evidence to suggest that the quality of education and acquisition of cognitive skills (especially literacy and numeracy) have important social pay offs being negatively related to fertility rates, and facilitate the making of informed choices regarding health behaviour (Unesco 2005).

Though evidence is rather limited, the Report points out that the returns to school quality may be higher in developing countries than in industrialized contexts. Quality schooling may often

play a crucial role in governing parental choices for sending children to school and in determining their attendance patterns. The findings from a few African countries go to show that the attainment of cognitive skills are critical for determining earnings, apart from the number of years of schooling (Unesco 2005).

The status of educational quality across various countries can be gauged from internationally comparable data on academic performance and test scores which have often served as a proxy for educational quality. The TIMSS (Third International Mathematics and Science Study), PIRLS (Progress in International Literacy Study) and PISA (Programme for International Assessment) are international surveys of cognitive achievement mainly from developed countries, but also include a few middle income developing countries. The TIMSS math test for grade 7 and 8 students showed that Japan, USA, South Korea and Malaysia performed well with high scores compared to generally lower scores in developing countries such as South Africa and Thailand. The PISA tests in math and reading administered to 15 year olds revealed that while South Korea outperformed many developed countries, the other 7 developing countries (Argentina, Belize, Columbia, Iran, Kuwait, Morocco and Turkey) lagged far behind. The percentage of students with lower skills was much higher in these 7 countries than in the developed countries (Glewwe and Kremer 2005). Results from PIRLS allowed comparisons of changes in reading comprehension between 1991 and 2001 for 9 year olds. It indicated that while achievement levels increased in Greece, Slovenia, Iceland and Hungary, it changed insignificantly in Italy, New Zealand and Singapore and US and fell in Sweden (Unesco 2005).

As regards the developing countries, the EFA report states that there are grounds to believe that many African countries included in SACMEQ (Southern and Eastern African Consortium for Monitoring Education Quality) had much poorer reading skills than IEA (International Association for Evaluation of Educational Achievement) countries. Moreover, a comparison of SACMEQ I (1995-1996) and II (2000-01) showed that 5 of the 6 countries had declines in literacy achievement scores though these were significant only in Malawi, Namibia and Zambia (Unesco 2005). A recent national level survey conducted in India by EI (Educational Initiatives) and WATIS (Wipro Applying thought in Schools) on student learning in top schools found a dismal gap in learning in key subjects. Learning was mechanical and rote based. Moreover, Indian students of class 4 performed far below average in math and science compared to their international counterparts in 43 other countries (India Today Nov. 2006)

Internationally comparable data are not available for very low income countries but students achievement on tests within many of these countries suggests that academic achievement is often very low. Reports suggest that while many countries such as Senegal, Bangladesh, India and Egypt are making impressive progress in access to primary education, learning achievements still continue to be a problem (Unesco 2005). A review of major research studies and achievement surveys in India found the academic performance of primary school students to be disappointingly low. The percentage of students who attained mastery levels was found to be negligible (Reddy, S. 2004. b.) A compilation of various studies in Pakistan concluded that on the average, students do not achieve competency on more than half the curriculum in the 5th grade. Moreover, students performed better on rote learning skills than items requiring comprehension and problem solving skills (Unesco 2003). In Ghana, the mean score of grade 6 students was a mere 25%. In Bangladesh, rural children aged 11 years had poor reading and comprehension skills (Glewwe and Kremer 2005).

It is fairly evident from the above account that school quality differs widely within and between countries. Children in developing countries not only receive fewer years of education, but attain lower achievement levels compared to their western counterparts. This reflects the low school quality in developing countries. In developed countries too, the stagnation of student performance on test scores represents a puzzling phenomenon (Unesco 2005; Glewwe and Kremer 2005).

Due to the current state of school quality in industrialized as well as developing countries, this issue has become the focus of concern the world over and many international forums too have now begun to stress on improvements in the quality of education in schools.

The Jomtien Declaration in 1990 and more particularly the Dakar Framework of Action, 2000 has emphasized the quality of education through its sixth goal. This includes commitments to improve all aspects of educational quality so that everyone can achieve better learning outcomes especially in literacy, numeracy and essential life skills. It affirmed that 'quality' was at the 'heart of education, a fundamental determinant of enrolment, retention and achievement' (Unesco 2005).

The European Union in its report on the Quality of School Education has highlighted that the quality of education is the concern of all member states of the highest political priority. "High levels of knowledge, competencies and skills are considered to be the very basic condition for active citizenship, employment and social cohesion" (European Commission, 2000).

Notwithstanding the growing universal concern about providing a high quality education to all children, an outstanding difficulty is that there is much less agreement on what the term educational quality actually means in practice. This has been largely due to a wide interpretation of the term both within and across countries reflecting the values and priorities of the different stakeholders along with the complexities of the teaching - learning process. The concept of educational quality is hence a complex one, which needs to be examined in depth.

Objective of the Study:

In the light of the tremendous importance now being attached the world over, to improving the quality of schooling, a study of the perspectives on school quality assumes utmost significance, as a clear understanding of the way quality in education has been conceived of globally, could serve as a useful guide for developing plans and policies for improving the quality of schooling in our country. The main objective of this research project has been to provide an overview of studies on school quality as follows:

- i) The second chapter examines secondary research literature on the concept of school quality and elucidates the diverse ways in which it has been conceived, to provide a clear conceptual perspective on the aforesaid issue.
- ii) The third and fourth chapters review the available literature on school quality and school effectiveness and present the findings of the major strands of research, such as School Effects Research, Effective Schools Research and School Improvement Research, which delineate the major determinants or factors influencing school quality. The report presents the results of each strand of research in two parts – the first dealing with developed countries and the second with developing countries.
- iii) The fifth chapter focuses on efforts to monitor school quality through the development of indicator systems and presents some models and frameworks that have been proposed to assess school quality in different parts of the world.

The above mentioned task has been accomplished by reviewing the literature that was available comprising of important and relevant reports, articles and books on school quality. This includes both empirical research studies as well as theoretical articles on the subject matter. At this moment, it would be pertinent to highlight some of the limitations encountered by the researcher and the points of caution that need to be kept in mind while reading this report.

Limitations and Points of Caution:

The primary difficulty faced in this study has been that the research work on school effectiveness and school quality is quite large. A prominent article on the subject mentions that there are over 300 books and articles that deal with the broad range of methodologies and perspectives for understanding school quality as well as on how to improve it (Williams 2001). It should be clarified that the review of research on school quality conducted here, by no means, attempts to be exhaustive. In fact, the major task has been to sieve the research literature and limit oneself to the prominent works in this area without losing sight of the historical dimension.

The second limitation of the research has been that the vastness of the data has been compounded by the relative inaccessibility of the relevant journals and books, especially recent publications, in the libraries of our country and on the internet. This has necessitated the researcher to make efforts to acquire some of the important and critical research materials from abroad.

This researcher has faced the difficulty of separating literature on theory from that of practice. Many programmes to understand and assess school quality are based on specific frameworks and models, just as various interventions and projects to improve school quality flow out of particular approaches. However, the focus of this report has been on representing the current global perspectives on school quality and hence the literature reviewed is limited to the above objective.

Given the vastness of the literature that had to be scrutinized, it became imperative to put aside the literature on school quality in the Indian context for a separate study, so that due justice could be done to it. Hence, the way the school quality has been viewed in India has not been the focus in this report. However, the theme will be taken up later as a separate topic of study.

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CHAPTER – II

A CONCEPTUAL PERSPECTIVE OF SCHOOL QUALITY

As discussed above, 'quality' in the context of education is an elusive term. It has been interpreted in a number of ways and hence a crystallized definition of the term has not yet evolved (Aspin and Chapman 1994, Williams 2001, Unicef 2000). It needs to be clarified that in the works of some researchers educational quality and school quality have been used interchangeably. In fact the EFA 2005 Report states that of the large body of research on what is important for the quality of education, most of the literature deals with schools as it is the major institution of learning in all societies (Unesco 2005, Williams 2001, Unicef 2000, Aspin and Chapman, 1994). It is also evident that sometimes school quality may be subsumed under the term educational quality. The term educational quality is a wider concept, where the focus of improving quality of education could begin with the learners conditions to the very specific aspects of the school or classroom through to that of the educational system as a whole. This report, however, has focused solely on school quality which is its primary concern. This chapter aims to provide a conceptual understanding of school quality in the following ways –

- i) by examining the semantic usage of the term 'quality' and how it is used in the context of education;
- ii) by distinguishing the term 'quality' from terms such as efficiency, effectiveness, excellence and equity with which it has often been associated and used interchangeably (Adams 1997, Aspin and Chapman 1994).
- iii) by identifying the multiple meanings of the term 'educational quality' which could eventually lead to an operational definition of the term;
- iv) by exemplifying some important definitions of school quality in the field of education; and
- v) finally by concluding this section with a discussion on some critical issues concerning the quality of education which have been the subject matter of international debate.

Quality-The Word

The word 'Quality' has a variety of meanings. It has both descriptive and normative characteristics. In a descriptive sense, it refers to the 'defining essence of an entity'. Here, one speaks of the quality of a classroom, a school or a system. In this sense, different observers may identify different defining characteristics as essential.

The term quality assumes significance in the context of education when it is given a normative interpretation. Here, quality would refer to 'a degree of excellence' and could include two aspects - a judgment of worth and a position on an implied scale of good / bad. 'Quality' may also denote implicitly 'the good' or 'excellent' as in 'quality school'. In normal parlance, quality may also be used in contradistinction with quantity, where qualitative statements are made of phenomena which cannot be measured.

Hence, 4 different semantic usages of the word 'quality' can be identified –

- i) Attribute or defining essence;
- ii) Degree of excellence or relative worth;
- iii) The good / excellent;
- iv) Non-quantified traits / judgments. (OECD 1989)

Given these different usages, it is not surprising that views on the quality of education are often subjective and individuals and groups differ considerably over what they judge to be good or bad.

The Multiple Meanings of 'Educational Quality'

The discussion on the semantic usage of the term is followed by an account of multiple meanings that have been ascribed to education quality. Adams identifies at least 6 common usages of quality that are given by educators. James Williams adds one more usage to this list.

1. Quality as Reputation: This refers to a general consensus of high and low quality, commonly used with reference to institutions of higher education, and not infrequently to lower educational levels that are known for their quality or lack of it. The basis for reputation often includes information of inputs and outputs.

2. Quality as Inputs and Resources: This is the most common usage of quality. Here, high quality is seen in high levels of provision of resources such as buildings, facilities, instructional materials etc. Input refers to the characteristics of pupils, teachers, administrators, their training / levels of education. Resources are necessary but insufficient conditions for desirable outputs such

as student achievement. The quantifiable nature of inputs makes this definition more common than other less measurable aspects of education, such as processes and outcomes.

3. Quality as Process: This suggests that not only inputs / results, but also the nature of intra-institutional interaction of students, teachers administrators, materials and technology in educational activities or how 'quality of life' of the school is valued determines quality. It also refers to the way the educational inputs are used.

As infusion of resources has often failed to lead to an improvement in outcomes, attention has now been turned to the processes within schools. However, most of the literature on educational processes is theoretical in nature, though elements / process of schools have been described in various empirical studies. The measurement of good educational process has however often been difficult.

4. Quality as Content: This refers to the body of knowledge, attitude and skills intended to be transmitted through the school curriculum to which a particular country or institution may favour in such a way that some content may be of higher quality than another. A trend towards a common educational content is now being recognized in the curriculum of early schooling across most of the countries.

5. Quality as Outputs/Outcomes: This is the most popular definition with policy makers that refers to the consequences of education, which is the primary concern of virtually all stakeholders. Measures of this definition of quality as outputs are students' cognitive achievement, completion rates, entrance ratios to next level of education, certification, individual skills, attitudes etc. Outcomes, on the other hand, refer to long term consequences of education such as employment, earnings, and changes in social attitudes / behaviour.

6. Quality as Value Added: This refers to the extent to which a school / system has influenced the student i.e., how the student has changed because of the programmes / norms of the school. A value added focus considers the degree of change rather than the final state or the way in which change come about (Adams 1997).

7. Quality as Selectivity This usage proposed by James Williams, refers to quality as a form of exclusiveness. In this view, the more exclusive or selective a school is, the higher its quality. (Williams 2001).

Though the seven commonly used definitions of educational quality are summarized above, an operational definition of educational quality often includes a combination of inputs, processes, contents, outputs or their relationships. This is evident in international research literature and in international policy planning documents. It has been stated that though most often the quality of education is seen in terms of the learning outcomes of students, to achieve this, the antecedents i.e., inputs and processes should also have quality in terms of efficiency, excellence and social justice (Unesco 2003).

In the view of international organizations such as the UNICEF and UNESCO, attempts to define quality in education, must take in to consideration the cognitive development of learners, and the acquisition of values and attitudes. Finally, it must take note of *equity* as any system characterized by the discrimination against any group in not fulfilling its mission. (Unesco 2005).

The discussion summarized above highlights the multiple meanings of school quality, which go to show that there is no single way to improve quality and that strategies to improve quality depend on the particular meaning of quality ascribed. Moreover, James Williams points out that different meanings of quality do not necessarily correspond i.e., a high level of inputs which is one definition of quality does not necessarily mean high quality of outputs which require an effective use of inputs (Williams 2001).

From the review of the conceptual perspectives of educational quality, Adams further operationalizes this concept by delineating the following characteristics. Quality has multiple meanings. It may be assessed by qualitative or quantitative methods. It is dynamic i.e., it changes over time and by context. It is multi-dimensional, it may subsume equity and efficiency. Most importantly, the meaning of quality is grounded in values, cultures and traditions and is specific to a given nation, community, school or parent. Hence, it can only be defined by context. Because of the above mentioned characteristics, comparisons of levels of educational quality are quite difficult. Adams goes further and puts forward a more optimistic list of characteristics of quality which includes the following – Quality is definable by context. It is not necessarily associated with high costs; given similar goals and contexts, it may be compared across settings. It often supplements, compliments or is integrated with efficiency and equity (Adams, 1997).

Some Distinctions between Quality and Related Concepts

Quality as stated above has a number of interpretations. In educational literature, quality has been associated with terms such as efficiency, effectiveness, equity, improvement and such other values that are the aims of any system seeking to produce effective learning (Aspin and Chapman 1994; Unesco 2003; Adams 1997, Williams 2001). Adams attempts to distinguish the term quality from some of these concepts.

According to Adams, "In practice Quality and its concepts are usually defined as outputs, outcomes, processes or inputs". Quality as stated earlier has both descriptive and normative usages. Most discussions of quality imply a normative usage, where quality refers to status or relative degree of worth (Adams 1997).

He distinguishes quality from efficiency by stating that efficiency may be defined simply as the relation of outputs to inputs. It involves maximizing the use of human and other resources in order to attain outputs and outcomes. In educational planning, it is necessary to distinguish between internal efficiency and external efficiency. Internal efficiency refers to the wise use of resources, which means getting the most output for the same input or getting the same output with reduced input. These measures of outputs / objectives are associated with 'costs' of inputs and processes. External efficiency relates inputs costs to outcomes which is actually the ratio of non-monetary inputs to outcomes (Adams 1997).

Adams quotes Cobbe where he states that "Equity in education refers to fairness between distinguishable groups in terms of access to, participation in, and achievement of the educational system" (Adams 1997). Quality and Equity have often been viewed as conflictual, the phrase often used is "equity or excellence?" It is often believed that pre-occupation with equity in education negates the achievement of excellence. But proponents of the counter view argue that since quality lies in providing excellence in all forms, equity would imply that all children get opportunity to develop to their fullest extent. Hence, equity would be subsumed under quality and excellence (Aspin and Chapman 1994). Moreover, Adams points out that equity implies that individual differences in abilities / cultures are recognized and consequent adaptations are made in practice (Adams 1997).

The OECD report distinguishes quality from equality by setting that they are not identical concepts. Quality refers to levels and standards while equality lies at the root and focuses on the distribution of benefits and power (OECD 1989).

According to Adams, the term quality is often used synonymously with 'effectiveness'. This refers to the degree to which the objectives are met or desired levels of accomplishment are achieved. Higher quality thus means an increase in effectiveness i.e., better output, process or input (Adams 1997).

As the term 'school quality' has been used interchangeably with 'school effectiveness', it is imperative for us to review the burgeoning international research literature on school effectiveness in our endeavour to gain insights into the theoretical perspectives on school quality. This task however will be taken up in the next section.

For the present, to attain conceptual clarity on the issue of school quality, this section lists below, some prominent definitions of the term from international research which demonstrate the different meanings and dimensions of the term that have been explicated so far.

Definitions of School Quality

The quality of a school or educational programme is often defined as some combination of inputs, processes and outcomes. This is explicated in the following definitions each of which reflects the varying emphasis and interpretations of the term:

1. In Guatemala, educational quality has been defined as material inputs and non-material characteristics of schools which have been shown to improve student learning (quoted in Adams, 1997).
2. UNICEF has defined educational quality in terms of 5 dimensions:
 - i) Learners who are healthy and well nourished;
 - ii) Environments that are safe / protective / gender sensitive with adequate resources;
 - iii) Content that is reflected in the relevant curriculum and materials for the acquisition of basic skills;
 - iv) Processes through which trained teachers use child-centered teaching approaches in well managed classrooms; and
 - v) Outcomes that encompass knowledge, skills and attitudes (Unicef 2000).
3. Fuller in his study of School Quality in developing countries has defined the term in the following way – 'School Quality is defined here as (a) the level of material inputs allocated

- to schools per pupil (b) and the level of efficiency with which a fixed amount of material inputs are organized and managed to raise pupil achievement. (Fuller, 1986).
4. Aspin and Chapman define it thus – “When we talk about a quality schooling, we often have in mind the best possible, most rounded and complete development for each child” (Aspin and Chapman, 1994).
 5. Most people view quality of education as the learning outcomes of students, which is the primary concern of all stakeholders. But to achieve the desired quality, the antecedents, that is the inputs and process should also have quality in terms of efficiency, effectiveness, excellence and sound justice (Unesco 2003).
 6. The meaning of educational quality should be clarified. The term can be definedin terms of either inputs or outputs. In the first, the quality of education is linked to school inputs such as teacher qualification, class size, teaching methods, pedagogical materials and curriculum In the second, educational quality is linked to the output of the system Quality is considered high if existing students achieve many of the curriculum objectives (Adams, 1997).
 7. “Ultimately the quality of an educational programme will be defined by input, output and value-added measures assessed in desired outcomes for their inter-relationships with one another (Bergquist W.H. and Armstrong quoted in Adams 1997)).

The foregoing discussion brings to the fore that school quality is a complex issue as there are multiple ways in which it is understood and opinions about it are by no means unified. Our discussion would remain incomplete at this stage, if we did not focus on some key issues surrounding the realization of quality goals in education which have become matters of international debate.

Important issues concerning School Quality

A central issue in the debate on school quality concerns ‘quality of what?’ This refers to considering which aspects of educational performance should enter the overall specification of quality. The discussion has, as of now, focused on input, process and outcome dimensions. For most people, quality in schools is predominantly about outcomes. The common sense argument runs that the quality of schools should be judged by the achievement of its students rather than from its resources - financial, physical or human. Parents too, regard the chief indicator of the

quality of a school to be success in academic achievement which may guarantee some sort of employability. They, however, also look at growth in non-tangible qualities, such as respect for others, tolerance and discipline that lead to the enhancement of the individual. However, what needs to be noted here is that attention to educational outcomes does not imply downgrading the *determinants* that lead to them. Hence, *an approach to improving quality that does not focus on the links between inputs, processes and outcomes* is bound to fail. (OECD 1989).

A related issue concerns the type of outcome that is being used as an indicator of school quality. In assessing the quality of schools, should priority be given only to those outcomes specifically defined as cognitive or should they embrace a broader understanding to include affective, social, aesthetic and moral learning? Research literature is replete with studies that take academic achievement as the indicator of quality, as it is easily measurable by standardized tests. It needs to be stressed that the concern for quality should encompass not only cognitive achievement of students, but also non-cognitive outcomes such as attitudes and values, including moral values, preparation for citizenship and regard to such graces as neatness, politeness and punctuality etc., which are so critical for the all round development of every child (OECD 1989). These outcomes are more complex, less tangible and difficult to measure. Quality education is also considered to include the inculcation of attitudes and values that will enable children to make a contribution to the enhancement of the community. Thus, in the words of Aspin and Chapman, quality education is to be seen as enrichment of individual capacities as well as in skills that will contribute to the social whole. (Aspin and Chapman, 1994).

Another crucial concern in the school quality debate refers to the question – Quality for whom? For some, the quality issue focuses on the low achievers. There are large number of young people receiving either too little education or education of the wrong sort. This may be resolved by enhancing the amount and type of learning. Another set of scholars are often concerned primarily with the high achievers, stating that the academically gifted are receiving mediocre education. In this regard, the policy makers and schools should not ignore the middle group of students with average abilities and hence, the challenge of schools must be to raise the attainment level of *all* pupils (OECD 1989).

Another critical issue in the debate surrounding school quality revolves around the phrase “equity or excellence”? It is often believed that the over-riding pre-occupation with concern for equity in the quality of education militates against the “achievement of excellence”. Proponents of

this view believe that schools should identify students with a potential for high performance and devote to them the additional resources that their exceptional abilities demand. Contrary to this is the view, as stated earlier, that quality lies in providing excellence in all its forms. Thus, quality would incorporate the notion of equity and individual excellence where everyone would get the opportunity to develop to their fullest extent of their capacity. In this sense, equity, quality and excellence are not seen to be in any tension (Aspin and Chapman 1994).

In fact where international organizations such as UNESCO and UNICEF are concerned with education, their chief concern is equity i.e., increasing equality in learning outcomes, access and retention. This reflects the belief that all children can develop basic cognitive skills given the right learning environment. Recent analysis has confirmed that the reason why some children fail to attain cognitive skills may be partly due to deficiency in educational quality (Unesco 2005). Hence, the approach stresses that quality and equity are inextricably linked.

The notion of relevance has always been a part of the debates on the quality of education. Especially in developing countries, curricula drawn from other countries have been viewed as being insensitive to the local context and to the learners' socio-cultural circumstances. At the national level, governments are concerned whether their education system will produce skills needed for a global competitive economy. Hence, the Global Monitoring Report advocates that "a balance should be struck between ensuing relevance of education to socio cultural status and to the well being of the nation" (Unesco 2005).

To conclude, the above discussion clearly reveals that educational quality is a multifaceted concept which has been viewed from different perspectives by different stakeholders in different parts of the world. This review of studies on the way school quality has been conceptualized, indicates that though its meaning is not a settled matter, there is consensus on the fact that a high quality of education should facilitate the attainment of knowledge, skills and attitudes that have intrinsic value, by all students, which can in turn contribute to economic and social development. It has also been observed that quality is not identifiable with any one particular characteristic or feature of the school, but with a range of factors, some or all of which we can locate in 'good' 'effective' or quality schools. Identifying these factors from research literature would be the focus of the next two chapters.

CHAPTER – III

SCHOOL EFFECTIVENESS IN DEVELOPED COUNTRIES

In the preceding chapter, the multiple meanings ascribed to the concept of school quality were discussed, and an operational definition of the concept of quality seen in terms of inputs, processes and outcomes was arrived at from the extensive research on the subject. It was also pointed out that the large majority of researchers have viewed school quality in terms of the learning outcomes of students, exhibited in form of cognitive achievement, which has been identified as the major explicit objective of all schools. Hence, it is the students' cognitive achievement that is most often taken as an indicator of school quality.

The main objective of this Chapter then is to collate the available evidence on School Effectiveness Research in developed countries as well as to delineate the main determinants or factors that have been found to be critical in enhancing student achievement. It is only by knowing how quality of schooling is determined that policies to improve quality of education can be designed.

The Concept of School Effectiveness

In order to determine how schools may improve their quality, a substantial body of research in developed and developing countries alike has sought to examine the factors that contribute to school quality as measured in terms of students' cognitive achievement. It is at this juncture that school quality becomes synonymous with 'school effectiveness' as improving student achievement or outcomes is seen to be the major goal of school effectiveness.

Put simply, the main concern of School Effectiveness Research has been to discover those school related factors that are critical in determining student achievement. More specifically its central aim has been to ascertain whether resources (inputs), processes and school organizational factors do in fact impact pupil outcomes, and if so to determine the nature of their impact.

Research tradition has varied according to the emphasis that is put on the antecedent conditions that determine student outcomes. These traditions have a disciplinary basis and hence

in School Effectiveness Research, three major strands have been identified namely – School Effects Research, Effective Schools Research including Instructional Effectiveness Studies and School Improvement Research. The findings of each of these will be examined in this chapter.

Origins of School Effectiveness Research

School Effectiveness Research had its origins in the United States and the United Kingdom where it emerged in the 60's and 70's. Thereafter, in other countries such as Netherlands, Australia, Canada, the school effectiveness movement gathered momentum in research and practice. In the US and elsewhere, there are a number of projects where school effectiveness knowledge is explicitly used to improve practice. This field has also been expanding rapidly in the developing countries, evidence from which shall be presented in the next section.

1. School Effects Research: Historically, the main impetus for the development of this research field came from the response to the deterministic findings of Coleman and Jencks. This was a period when the input – output paradigm dominated the thinking on the subject. These studies focused on inputs such as school resources variables (e.g., pupil expenditure) and student background (variants of students SES) to predict school outputs, which was students achievement on standardized tests. Coleman and Jencks' studies intended to examine the influence of school factors and pupil background on student achievement. The results of the studies by Jencks et.al and Thorndike etc showed that the potentially malleable school factors, accounted for only 10% of the variance in pupil performance. Hence, it was concluded that the socio-economic background of students played a vital role while schools and instruction characteristics made relatively little difference to the learning attainment of pupils in developed countries (Schreens 1999; Teddlie and Reynolds 2000; Unesco 2005).

These findings inspired a wave of research studies that were concerned with measuring the 'school effect' on student achievement by eliminating the influence of pupil background. They were also identified as education production-function studies which had drawn from micro-economic analysis. The concentration of these studies has been on explaining the impact of inputs such as teacher pupil ratio, teacher salaries, per pupil expenditure, teacher education and experience on student outcomes. The findings of such research studies have been conflicting and disappointing in industrialized countries. Hanushek and Kimko (2000) found that variations in school resources do not have strong effects on students test performance. According to them, the

effects of resources were statistically insignificant. Studies by Hanushek (1986) and Hanushek and Luque (2003), which examined the determinants of quality in more than 40 countries, found the coefficients associated with school characteristics to be insignificant. The authors concluded that for the countries sampled the power of resources to produce better student performance was limited (quoted in Unesco 2005). Hence, this group of studies did not find a positive relation between educational expenditure and outcomes.

During the last decade, a number of studies have come up with conflicting results to show that certain school resource factors do indeed have a positive association with pupil achievement. Lee and Barro (2001) in their sample of 58 countries have found that smaller classes (decreased PTR) raised pupil achievement; and higher teacher salaries and more years of schooling also enhanced students outcomes. Hedges, Laine and Greenwald (1994) utilizing Hanushek's data found significant effects of per pupil expenditure on students outcomes, Achilles (1996) found sustained effects of reduced class size in the first three years of primary school on student achievement (quoted in Schreens 1999).

The Global Monitoring Report 2005 compiled a meta-analysis of all studies in the USA till 1995 covering 376 production – function estimates. The findings showed that in a considerable majority of all cases, there was no significant measured relationship between resource inputs and student performance in industrialized countries (Unesco 2005).

The conflicting nature of the evidence produced by School Effects Research would lead one to conclude that improvements in school resource factors in developing countries would more likely influence the levels of cognitive achievement of pupils than in developed countries like the USA which already has a high average resource levels (Unesco 2005; Stoll and Fink 1996).

2. Effective Schools Research: Along side, this economics tradition of production – function studies, a different approach to the study of schools and classrooms also emerged, called the Effective Schools Research. This was regarded as a response to studies of Coleman and Jencks which concluded that schools did not matter very much in explaining student achievement levels. Researchers were becoming increasingly concerned that the production – function studies were ignoring the important aspects of teaching and learning in schools. In fact, the major criticism of the early school effects literature was that school and classroom processes were not adequately measured. The neglect of school processes could possibly explain the ambiguous results of the production – function studies.

The most distinguishing feature of Effective Schools Research was that it attempted to open the 'black box of the school' and study the characteristics related to organization, form and content of school in determining students outcomes (Schreens 1999). Hence, processes such as the quality of teacher - pupil interactions, the way research inputs are actually used and the ways of organizing schooling were factors that were likely to affect student outcomes which were hitherto ignored.

The 'Effective Schools' studies were quantitative in orientation and mainly focused on the 'school' as the unit of analysis. The focus was on identifying 'what works' to make schools effective. These studies went to show that schools did indeed make a difference to student achievement. Numerous reviews of school effectiveness studies have been published such as Edmonds 1979; Purkey and Smith 1983; Rutter 1983; Good and Broophy 1986 and the more recent works by Moritmore et.al 1988, Levine and Lezotte 1990, Scheerens 1992, Creemers 1994, Cotton 1995, Sammons et.al 1995 (quoted in Teddlie and Reynolds 2000). The findings of some of the major studies will be presented in this section.

Generally, the concern in Effective Schools Studies was to explain the in-school factors responsible for pupils academic outcomes. However, Edmonds (1979), an early proponent of school effectiveness blended his definition of school quality with that of 'equity', through his study of elementary schools for the urban poor where he stated that an effective school was one that could bring the children of the poor to the minimum masteries of basic school skills (quoted in Stoll and Fink 1996). Following this, many researchers began to emphasize 'equity' as an important aspect of an effective school, where all children could learn to acquire the basic skills. Edmonds (1979) generated a simplistic five factor model of an effective school which included the following characteristics – (i) strong leadership from the principal (ii) emphasis on the acquisition of basic skills (iii) an orderly and secure environment (iv) high expectation of pupil attainment and (v) frequent assessment of pupil progress (quoted in Stoll and Fink 1996).

This model was characteristic of the early effective schools research. Though it established the importance of equity in school effectiveness, the outcomes were limited to achievement in basic skills. This was mainly because much of their research was largely carried out in primary schools.

A detailed understanding of the 'what works' in effective schools can be obtained from a review of 5 recent studies that presents lists of 'effectiveness enhancing conditions' and shows that

there is a fair amount of consensus across studies on school processes that determine student outcomes.

Table – 1 summarizes the characteristics of effective school processes listed in the reviews by Purkey and Smith 1983; Scheerens 1992, Levine and Lezotte 1990 and Sammons et.al 1995, Cotton 1995 (Unesco 2005).

Table – 1

Effectiveness-enhancing conditions of schooling: results of five review studies

Purkey & Smith, 1983	Levine & Lezotte, 1990	Scheerens, 1992	Cotton, 1995	Sammons, Hillman & Mortimore, 1995
Strong leadership	Outstanding leadership	Educational leadership	School management and organization, leadership and school improvement, leadership and planning	Professional leadership
Clear goals on basic skills	Focus on central learning skills		Planning and learning goals and school-wide emphasis on learning	Concentration on teaching and learning
Orderly climate; achievement-oriented policy; co-operative atmosphere	Productive climate and culture	Pressure to achieve, consensus, co-operative planning, orderly atmosphere	Planning and learning goals, curriculum planning and development	Shared vision and goals, a learning environment, positive reinforcement.
High expectations	High expectations		Strong teacher-student interaction	High expectations
Frequent evaluation	Appropriate monitoring	Evaluative potential of the school; monitoring of pupils' progress	Assessment (district, school, classroom level)	Monitoring progress
Time on task, reinforcement, streaming	Effective instructions arrangements	Structured teaching, effective learning time, opportunity to learn	Classroom management and organization, instruction	Purposeful teaching
In-service training / staff development	Practice-oriented staff development		Professional development and collegial learning	A learning organization

	Salient parent involvement	Parent support	Parent – community involvement	Home-school partnership
		<ul style="list-style-type: none"> ° External stimuli to make Schools effective. ° Physical and material school characteristics. ° Teacher experience ° School context characteristics 	District School interactions. Equity Special programmes.	

(Unesco 2005)

Although the emphasis has varied in these five studies, as can be seen, there is large scale agreement on the first five factors which were regarded as important processes of effective schools. These included–

- i) Strong educational leadership;
- ii) Focus on learning central skills;
- iii) Orderly and secure climate;
- iv) High expectations of pupil attainment and achievement orientation; and
- v) Frequent evaluation of pupil progress.

Apart from these, the other factors which were increasingly found to be important were –

- a) in-service development of teachers;
- b) use of well structured, purposeful and sustained teaching time; and
- c) beneficial influence of parental support and involvement with the school.

1. Effective Leadership: Almost all the studies of school effectiveness found leadership provided by the head teacher, to be an important factor of effective schools. Firm and purposeful leadership is the first requirement of effective leadership , together with ensuring that all teachers are part of the process. Exhibiting instructional leadership was an important requirement brought out by various studies such as Rutter 1983, Sammons et.al 1995, Levine and Lezotte, 1990, Teddlie and Stringfield 1993 (quoted in Teddlie and Reynolds 2000).

2. Focus Upon Learning: Focusing upon the importance of academic goals and processes has been a core feature of effective schools. This could be seen in factors such as a commitment to the

mastering of central learning skills, high curriculum coverage or opportunity to learn, use of homework, and maximizing available learning time at the school level. This was highlighted in the studies such as Levine and Lezotte, 1990; Teddlie and Stringfield 1993, Sammons et.al 1995 (quoted in Teddlie and Reynolds, 2000).

3. Generating a Positive School Culture: Research has shown that effective schools possess a vision or 'mission' that is shared by the staff and there is a sense of community that is related to co-operation between colleagues and good communication between staff. Consistency in practice i.e., a consistent approach to the school curriculum has a positive impact on pupil progress. Order within the school is also important in the creation of a positive climate, as without this it would be very difficult for the staff to attain high levels of student attention. This is seen in the studies by Rutter 1979; Edmonds 1979; Levine and Lezotte 1990 and Mortimore et.al 1996 (quoted in Teddlie and Reynolds, 2000).

4. High Expectations of Achievement and Behaviour: High expectations of students achievement and behaviour by teachers have been one of the most consistent findings. This needs to be communicated to students by the behaviour and verbal reinforcement of teachers. This is also related to high expectations that staff have of what it is possible for them to achieve. This is highlighted in the studies by Teddlie and Stringfield 1993; Sammons et.al 1995; Scheerens, 1992; Levine and Lezotte, 1990 (quoted in Teddlie et.al 2000).

5. Monitoring Progress at all Levels: The monitoring of student progress is a factor found in all school effectiveness studies. It helps schools focus on the 'core' goals; it can be used to identify those in need of remedial teaching; it is used as a feed back data on pupil performance to the staff and to the whole school, exemplified in studies by Edmonds 1979; Hopkins 1994, and Moritmore 1988 (quoted in Teddlie and Reynolds, 2000).

6. Staff Development: Effective schools also mention school site-based staff development which is one of their important characteristics. A close synchronization between staff development and school development priorities and generating a staff culture involving mutual learning, monitoring and commitment to collaboration are all important (Moritmore et.al 1988; Levine and Lezotte 1990 (quoted in Teddlie and Reynolds 2000).

7. Parental Involvement: Parental involvement is also a factor in effective schools. Literature of North American schools indicates that parents' direct involvement in school work has particularly

beneficial effects (Sammons et.al 1995, Levine and Lezotte, 1990; Teddlie and Stringfield 1993 – (quoted in Teddlie et.al 2000).

Sammons et.al (1995) is a recent review that summarizes British and North American Research literature and provides a list of 11 key factors which are a useful synopsis of the most common factors found to be associated with effective schools.

Table – 2

Eleven factors for Effective Schools

1. Professional leadership	Firm and purposeful A participative approach The leading profession
2. Shared vision and goals	Unity of purpose Consistency of practice Collegiality and collaboration
3. A learning environment	An orderly atmosphere An attractive working environment
4. Concentration on teaching and learning	Maximization of learning time Academic emphasis Focus on achievement
5. High expectations	High expectations all round Communicating expectations Providing intellectual challenge
6. Positive reinforcement	Clear and fair discipline Feedback
7. Monitoring progress	Monitoring pupil performance Evaluating school performance
8. Pupil rights and responsibilities	High pupil self – esteem Positions of responsibility Control of work
9. Purposeful teaching	Efficient organization Clarity of purpose Structured lessons Adaptive practice
10. A learning organization	School-based staff development
11. Home-school partnership	Parental involvement

(Stoll and Fink 1996)

The EFA Report points out that the amount of variation in pupil achievement that these empirical studies of school effectiveness in industrialized countries explain is comparatively low, seldom more than 15%, as the power of school and classroom variables to explain achievement remains limited. It has been pointed out that classroom resources typically vary less in rich countries as schools tend to have similar levels of funding (Unesco 2005). Studies do seem to suggest that school related factors tend to explain more of the variation in achievement in developing countries and this will be explained in the forthcoming section.

The foregoing discussion exhibits that the role of 'school level' organizational processes in influencing student achievement has been emphasized in different school effectiveness studies to the detriment of classroom practices. It has now become evident that classroom level process data has become particularly important in explaining student achievement as most of the variation in schools in industrialized countries is due to classroom practices. Hence, a look into the brief research on teaching and instructional effectiveness becomes relevant in explaining achievement.

2 a. Studies on Instructional Effectiveness: From the body of research on teaching effectiveness, it has become clear that within effective schools, the 'classroom level' is more important in determining the quality of schooling outcomes than the level of the school itself (Creemers quoted in Teddlie and Reynolds 2000). Factors more proximal to the student such as the teacher are likely to be more important than distant factors such as school / district.

In the 60's and 70's, the study of the effectiveness of particular traits of teachers led to the finding that there was hardly any relation between teacher characteristics and pupil achievement (Scheerens 1999). More recent studies on the examination of teacher characteristics, however, have discovered the importance of teacher's subject matter mastery and verbal skills, their expectation of students, and their own passion for learning as significant factors affecting school quality (Darling Hammond 2000; Unesco 2005).

This was followed by a series of research studies entitled 'process and product' studies that focused on the emerging link between observed teacher behaviour and pupil performance. The teacher characteristics that emerged strongly were clarity, flexibility, enthusiasm and ordered

preparation (Scheerens 1999). From the 80's, however, studies of the determinants of effective instruction showed more consistent results. The important instructional factors that were significant in improving pupil performance were effective learning time, class organization and management, teaching strategies and instruction, assessment and teachers expectations (Stallings quoted in Unesco 2005; Teddlie and Reynolds 2000).

i) Crucial in determining effectiveness of teaching was firstly the management of time. It became clear that increasing school time did not necessarily lead to improved performance, rather more important was how effectively time is spent. Studies of effective teachers showed that 15% of the school time was spent on lesson planning. 50% on interactive teaching and 35% on monitoring pupils' work (Unesco 2005). Maximizing the proportion of time spent interacting with pupils and minimizing the time loss due to routine administrative matters and disciplinary interventions were particularly important in enhancing achievement (Slavin 1996, Mortimore et.al 1988 quoted in Teddlie and Reynolds, 2000).

ii) Secondly, effective instruction is characterized by an effective classroom organization. Particularly important here is the importance of preparing lessons in advance. The structuring of lessons was also important including making clear to students what has to be done, and splitting curricular material to aid learning (Scheerens 1992). Slavin (1996) indicated a significantly positive effect of co-operative learning at the school level (quoted in Scheerens 1999).

iii) Effective learning at the classroom level involves use of effective teaching practices. A list of the characteristics of effective teaching was presented by Doyle which included –

- i) Clearly formulated teaching goals;
 - ii) Course material split into required tasks;
 - iii) Clear explanation from the teacher on what the pupil must learn;
 - iv) Regular questioning by teachers to gauge pupils progress;
 - v) Ample time for pupils to practice what has been taught; and
 - vi) Regular testing
- (Doyle quoted in Unesco 2005).

The types of teaching strategies that are employed by teachers also influence student achievement. Broophy and Good found that highly structured teaching worked equally well for acquiring complicated cognitive processes at the secondary level as well as for mastering basic

skills at the primary stage. Doyle also emphasized the importance of varying learning tasks and of creating intellectually challenging learning situations. An interactive climate in the classroom where pupils are encouraged to take risks was helpful (quoted in Scheerens 1999).

The more recently developed constructivist perspective on learning challenged the notion of structured teaching. According to this approach, learners are the main instigators of the learning process, and independent learning, meta-cognition (learning to learn), active learning and learning from real life situations should be emphasized. Researches point out that a straight forward comparison of the two approaches may be complicated since the latter emphasizes higher cognitive objectives. Most recent research points to a trend where the importance of structured teaching is mixed with the respect for self regulated learning by pupils (Broophy 2001, Anderson 2004, quoted in Unesco 2005). In fact, Schreens points out that structured vs active and open teaching is better conceived as a continuous running from structured to 'open' aspects rather than as a dichotomy (Scheerens 1999). The key to effective teaching lies in selecting the appropriate practice depending on learner characteristics, tasks, objectives etc. These two teaching strategies presuppose that levels of student competence and classroom facilities may be of one standard, and hence this debate may be particularly relevant to the circumstances of richer nations and communities.

Research has also shown that high teacher expectations contribute significantly to pupil performance and conversely negative expectations of certain pupils may have detrimental consequences on their performance. Mcber points out that high teacher expectations may trigger the drive for improvement among pupils and their passion for learning (Mcber in Unesco 2005).

Teddlie and Reynolds point out that the adaptation of practice to the particular characteristic of learners is the final component of effective teaching. It was noted that effective teachers adapted core texts and modified reading programmes according to their students' needs (Teddlie and Reynolds, 2000).

Reviewing the influence of educational, psychological and social factors on learning, Wang Hartel and Walberg list out the following as being critical in influencing student achievement in order of priority – (i) student characteristics (ii) classroom practices (iii) home and community contexts (iv) design and delivery of curricular and instruction (v) school demographics (vi) state and district governance (Wang, Hartel and Walberg 1993).

The authors concluded that of these factors, classroom practices have the strongest association with achievement. This included classroom management and student teacher interactions. Important classroom practices also comprised of classroom climate, classroom assessment and quantity of instruction (time on task). As seen above, the authors also found that relatively structured approaches to teaching provided important pay offs to learning (Wang, Hartel and Walberg, 1993).

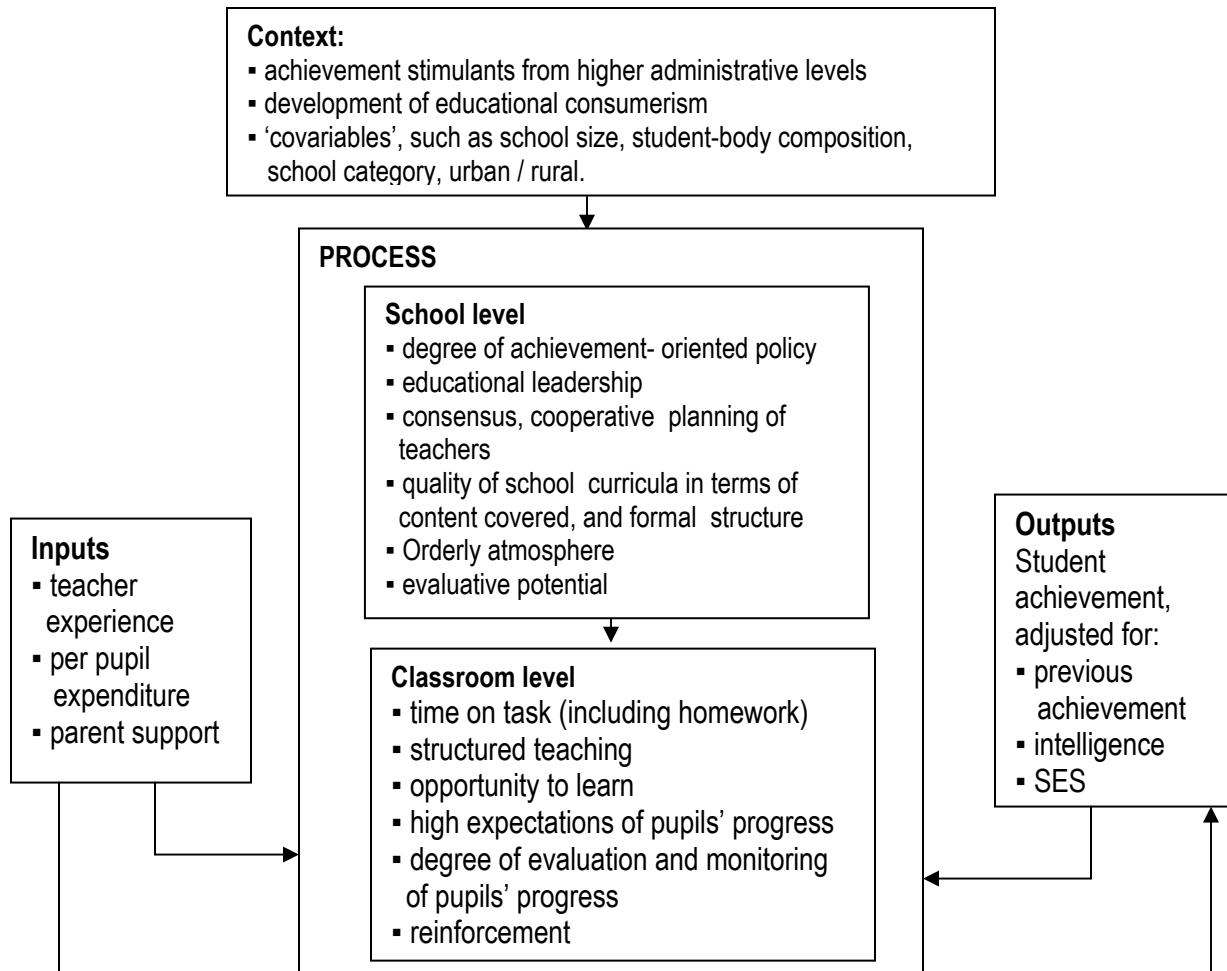
A study by Slavin (1996) has shown that within – class ability grouping in mathematics was an effective strategy that improved student outcomes at the primary level despite some loss of instructional time. This was the case compared to the whole class ability grouping that was found to be generally ineffective (quoted in Unesco 2005).

Thus research on instructional effectiveness has revealed the major determinants of effective teaching to include (i) effective learning time (ii) Structured teaching which was important to pupil performance at both primary and secondary levels (iii) classroom climate and organization that directly impact student learning and (iv) strong teacher characteristics.

The above discussion on characteristics of effective teaching that impact student achievement must be supported by the broader conditions of effective schooling such as school climate and leadership. This integration of classroom level variables and school level variables in explaining student achievement is essential due to the continuing interface between the classroom and school. The most recent effectiveness studies have sought to synthesize elements of the three strands of school effectiveness research by including key variables from each tradition at the appropriate level of school functioning (School environment, organization, classroom and student). There are exemplary cases of integrative multi level school effectiveness studies done by Mortimore et.al (1988), Sammons et.al (1995), Scheerens 1992) and Stringfield and Slavin (1992) (quoted in Schreens 1999). The integrated model of school effectiveness is comprehensive as it encompasses inputs, processes and outputs and context conditions while recognizing the multilevel structures of the system. An example of such a model is demonstrated below:

Table – 3

An Integrated Model of School Effectiveness



(Scheerens 1999)

3. Recent Advances in School Effectiveness Research:

A brief narrative of the advances made in school effectiveness research in developed countries is essential in order to know how a coherent knowledge base was built up that required the application of statistical techniques like multilevel modeling to large data. Early work on school effectiveness suggested that schools were equally effective across a range of outcomes (Rutter 1983). However, recent work employing more advanced statistical techniques, have discovered significant differences among schools in their effect on pupils achievements. Some of these advances shall be discussed below -

Importance of Context: A new, more sophisticated era of School Effectiveness Research began with the context studies (Teddlie and Springfield 1993; Willms 1992, Scheerens, 1992) that sought to explore the factors that were producing greater effectiveness in schools within different contexts such as middle class schools, suburban schools and secondary schools. Context came to be defined in terms of (1) location i.e., (within country / city/ urban / rural), (ii) background of pupils i.e., socio economic status; (iii) phases of schooling or grade level (Stoll and Fink 1996).

The study of context variables permeates all the three strands of School Effectiveness Research. These studies explored the differences in school effects that occurred across different contexts. Willms defines context in terms of one variable, the SES of the Schools student body (Willms 1992). Teddlie and Stringfield expanded the definition of context to refer to students SES, age and grade levels of school and governance structure (Teddlie and Stringfield 1993). Different countries came to have distinct traditions with regard to context variables. Willms concluded that the schools SES context had strong effects for students of all abilities, hence, they tended to benefit in terms of academic achievement from attending high SES Schools (Willms 1992). Teddlie and Stringfield's (1993) study of Louisiana's 76 schools found that they were divided on two dimensions effective and less effective depending on SES of the student body (Middle SES – Low SES). The research indicated that effective schools had implemented different strategies depending on the SES context of the particular school under examination (quoted in Teddlie and Reynolds 2000).

Other studies such as those by Levine and Lezotte (1990) expressed doubts whether characteristics identified in effective elementary schools had some relevance in secondary settings. Sammons' review of key characteristics of effective schools that outlined 11 factors (mentioned earlier) concluded that these were generic, however, context in terms of pupils SES and school location had to be considered in any case (quoted in Stoll and Fink 1996).

Multilevel Modelling:

The foremost methodological advance in School Effectiveness Research was the development of multi level mathematical models to more accurately focus upon all difference levels within the school organization. Traditionally, the 'school level' had received most attention. It is now recognized that inclusion of classroom level process data is very important given the fact that most of the variation among schools is due to classroom variations (Scheerens 1992). Willms presents an input – process - output model for monitoring school systems using a multi-level analysis. He

outlines the performance indicators describing aspects of schooling at various levels of the system i.e., pupil level, classroom level, school and district level (Willms 1992). Other important studies that have used a multilevel analysis to study school differences included Teddlie and Stringfield 1993; Scheerens 1999; Goldstein 1995 (quoted in Harris 2001).

Differential Effectiveness:

A number of School Effectiveness researches especially in the UK sought to explore the issue of differential effectiveness which focused on differences within schools. It was often assumed that an effective school was effective for all its pupils, but evidence suggests that some pupils may do better than others within a school. When this occurs, the school is displaying differential effectiveness. Evidence of the school's differential effectiveness has been found for pupils' prior attainment levels, boys vs girls and pupils of different ethnic and social class backgrounds. Nuttall noted that some schools were more effective in raising the achievement of students with high attainment at entry than those with low attainment at entry. They also found that some schools were more effective in raising the achievement of one or more ethnic group (Nuttall quoted in Harris 2001).

Size of School Effects:

Stoll and Fink point out that most studies on school effectiveness have identified between 8 – 14% of the total variance in pupil achievement to be attributable to the school. The important question is whether researchers have studied every relevant aspect especially at the classroom level. Hence, a study of resources, school process and classroom practices might increase the effect sizes (Stoll and Fink 1996).

Use of Multiple Outcomes: Recent research in school effectiveness has also broadened the definition of effectiveness. The recognition of the impact of background on pupil attainment has led to a shift in focus from student achievement to that of examination of student's progress. Measuring student progress over time has now become the central concern of contemporary studies. Mortimore states an effective school to be one in which pupils progress further than expected from a consideration of its intake (Mortimore quoted in Stoll and Fink 1996). Many recent studies are now using a broad range of factors to arrive at measures of effectiveness instead of limiting the scope of outcomes to measurement of student achievement on standardized tests. They are now using multiple outcomes such as social and affective outcomes, pupil behaviour, attendance, delinquency and attitudes and adding these to the information on pupil attainment as

measures of school effectiveness (Teddlie and String field 1993; Moritmore et.al 1988 etc). Stoll and Fink state that current assessments are measuring only a limited aspect of the child's ability and skills. If school effectiveness has to reflect the reality of today's world, they must broaden the range of outcomes to incorporate creativity and problem solving skills (Stoll and Fink 1996).

The foregoing summary of the findings of School Effectiveness Research studies has demonstrated that schools do make a difference and can have a positive influence on educational outcomes. The major goal of school effectiveness is the attainment of student's outcomes in the form of achievement which is measurable and quantifiable. It has exhibited the influence of context variables such as students SES, etc., on educational outcomes. Most importantly, it has highlighted the role of teaching and learning processes within schools in the attainment of student outcomes. These take the form of identifying the key characteristics or co-relates of effective schools in developed countries. Finally, it has shown that instructional effectiveness is an important component of school effectiveness. Despite these major achievements, this field also has a few limitations. Firstly, school effectiveness reflects a view of schools at a point in time. It does not view them as dynamic and changing organizations. Secondly, another shortcoming has been the limited practical application of this research in terms of school development and improvement, since it has concentrated only on identifying the factors that work in effective schools. Fortunately, the rich field of 'school improvement' has evolved simultaneously and though different in theory and methodology, it is now being linked to 'school effectiveness' to bring about meaningful change in schools.

4. School Improvement Research: A third strand of research that is an offshoot of school effectiveness emerged when researchers such as Edmonds were no longer interested in describing the features of effective schools, but also wished to 'create' them especially for the urban poor. It was at this point, that the first school improvement studies began to emerge which were concerned with changing schools to make them more effective. Moreover, in the US, a number of school effectiveness projects used this knowledge to improve schools. The strength of school improvement is that it concentrates on how change occurs in school systems. The research is holistic and action oriented, proposing improvement strategies for long term goals.

School improvement has thus been defined as a systematic and sustained effort to bring about change in the internal conditions of the school, with the aim of accomplishing educational goals. A more recent definition by Hopkins defines it as 'a strategy for educational change that

enhances student outcomes as well as strengthening the schools capacity for managing change' (Hopkins 1994). The basic tenets of this approach are as follows:

1. School Improvement efforts embody the principles of the 'self renewing school' where change and development are owned by the school and not imposed from outside.
2. The key focus is to change the internal conditions of the school that refers not just to teaching – learning processes, but also to school procedures, role allocation and resource uses that support teaching and learning. Hence the real agenda is to change the school culture ensuring 'whole school development' and not just a single innovation (Stoll and Fink 1996).
3. It is concerned with a broader definition of outcomes rather than being limited to achievement outcome of pupils. The range of school improvement goals includes those related to pupils, teachers and school organization.
4. School Improvement is unique to each school because each school's context is unique. Hence, each school would address the change process in different ways, and no blueprint can be proposed for all schools.
5. There is a multilevel perspective. Although the school was the centre of change, it did not act alone. All elements of the educational system had to work collaboratively if the highest quality had to be achieved – teachers, parents, staff, local authorities.
6. It is based on the practical knowledge of practitioner. Its focus shifted from the school to the teacher although improvement was whole school oriented.
7. It emphasized the notion of school self evaluation and school based reviews.
8. The change process comprised 3 phases (i) initiation (ii) implementation (iii) institutionalization (Fullan 1991; Miles 1986; (quoted in Teddlie and Reynolds 2000).
9. It is an approach with its roots in practice rather than scientific research and is characterized by a large range of qualitative studies rather than quantitative methodology (Hopkins 1994; Hopkins 2000; Reynolds 1997, Teddlie and Reynolds 2000, Stoll and Fink 1996, Harris 2001, Mel west 1998).

The key themes and strategies for school improvement identified by the main researchers Fullan, Hargreaves, Miles include the following -

1. effective leadership;
2. shared vision that helps school define their own direction;
3. collaborative planning and decision making;
4. staff development and resource assistance;
5. actual initiation and participation;
6. commitment and acceptance of school improvement efforts;
7. monitoring the change process and evaluation of process and final outcomes.

(quoted in Henevald and Craig 1996, Stoll and Fink 1996)

This basic philosophy has underpinned a large number of school improvement projects in the past two decades which have the different emphasis, orientation and diverse approaches to school level change. Amongst the most influential school improvement projects were –

- (1) ISIP (International School Improvement Project) undertaken in 14 OECD countries over 4 years. The project introduced the long term goals of schools moving towards self renewal and growth (Harris 2001).
- (2) The other school improvement programmes were the Halton Effective Schools Project in Canada (Stoll and Fink 1992), Success for All (Slavin, 1996), The Comer School Development Programme, The Accelerated Schools Project (Levin 1993). All these Programmes placed the school at the focal point of change and engaged them in the process of school growth planning (Harris 2001).
- (3) Improving the Quality of Schools for All (IQEA) was the most successful School Improvement Project in the UK. Each school of IQEA was encouraged to improve the internal conditions at the school and classroom level by adopting the overarching model of improvement for their own needs and contexts (Harris 2001).

The brief overview of the School Improvement approach, which provides insights into how to bring about change in schools, demonstrates its inherent differences with the school effectiveness approach which tried to identify the school level factors associated with student achievement. Despite these different orientations, currently, a number of researchers and

practitioners are linking these two perspectives and currently a new wave of thinking is being reflected in a 'merged paradigm' that converge elements of the two fields. As Stoll and Fink say "By combining the two fields, we have joined an outcomes orientation with process to achieve change in our schools" (Stoll and Fink 1996).

The integrative approach is evident in a number of new projects that are concerned with improving pupil performance and school quality. Projects such as the Halton Effective School Project in Canada; the IQEA in the UK and the Barclay Calvert Project in the USA; the Dutch National School Improvement Project and Australia's Effective School Project are cited as examples of the new wave of thinking. The key characteristics of this paradigm according to Reynolds are (i) the enhanced focus on the importance of pupil outcomes as against the earlier emphasis on changing process in schools (ii) the use of both quantitative and qualitative data to measure programme quality (iii) the utilization of knowledge from both traditions as in the Dutch School Improvement Project which combines teacher effectiveness and School Development (iv) All programmes of the 'new paradigm' share a focus upon the classroom level as its role is now recognized in potentiating student achievement as against the earlier emphasis on the school level in both the two perspectives (Reynolds 1998).

It can be seen that the School Improvement approach is basically a product of western discourse and is reflected in programmes of educational change in schools of the developed countries where schools have become significant agents in the management of their own change. There is very limited application of this approach to schools in developing countries where resource constraints exist and where School Effectiveness Research has made a greater headway. In fact, the EFA Report states that even in the developed countries, the emphasis on school level change strategies is too time consuming and expensive and most likely to be effective for schools with a strong capacity for change (Unesco 2005).

This section of the report has covered the broad spectrum of the perspectives and findings of the major strands of school effectiveness research in the developed countries. The results in this summary of reviews indicate the following –

- i) School Effects Research in industrialized countries produced ambiguous results and demonstrated that resource input factors on an average had a negligible effect in enhancing student outcomes in developed countries.

- ii) Effective Schools Research examined the role of 'school processes' mainly focusing on school organizational factors that were found to have a small effect on student achievement, through the meta-analysis of various studies. There was however, a greater degree of consensus on the relevance of these factors in the qualitative research reviews. At a deeper level, the role of classroom processes was examined in instructional effectiveness studies which were found to have an average to large effect in improving student outcomes.
- iii) Finally the School Improvement Approach exhibited how the process of change can actually be effected in schools as evident in the numerous School Improvement Projects. Moreover the two fields of school effectiveness and school improvement have now converged in their interests which is being reflected in a number of projects and programmes that are concerned with improving school quality.

CHAPTER - IV

SCHOOL EFFECTIVENESS IN DEVELOPING COUNTRIES

This chapter presents the findings of empirical research on school effectiveness in developing countries, with a view to identifying those factors that have played a crucial role in enhancing school effectiveness. Such an exercise would enrich our understanding of school quality in this context. As in the case of developed countries, school effectiveness or school quality here, has also been viewed in terms of outcomes, specifically students achievement. Apart from locating the factors that enhance student achievement, this review of research will also enable us to compare these findings with the results of school effectiveness research from industrialized countries. Such knowledge could aid in formulating policy aimed at improving school quality in developing countries.

As seen in the previous chapter, studies of school effectiveness and improvement have been undertaken in developed countries which are characterized by a more or less uniform material and economic infrastructure. However, the prevailing socio-economic conditions in developing countries are markedly different from those existing in industrialized nations. This context is often characterized by a lack of schools especially in rural areas, school buildings that are poorly equipped, classes that are very large or small and a shortage of teaching staff etc. Glewwe and Kremer state that the quality of schooling in developing countries is very low in the sense that children learn much less in school than that stated in the curriculum. They point out further that grade repetition and leaving school at an early age are common, teachers are absent from classrooms, many schools lack basic equipment and school supplies. Moreover, teacher quality and availability is a common problem. It has been stated that this low quality of schooling is not entirely surprising because the rapid expansion of primary and secondary education has strained the countries financial and human resources (Glewwe and Kremer, 2005). Hence, research on school effectiveness in developing countries shows that the important variables that determine effectiveness are influenced by the “context” surrounding the school.

Apart from the difference in context, a few other aspects need to be kept in mind while discussing School Effectiveness Research in developing countries. Scheerens points out that the

integrated model of school effectiveness (comprising inputs, processes, outputs and context conditions) illustrated in the previous chapter, which is generated from studies in the West, cannot be transferred and applied to developing countries, due to a number of limitations, which are as follows:

- i) The model has the micro level of the individual school as its focus and leaves out the issue of the proper functioning of a national education system at the macro level;
- ii) The model uses educational goals as largely 'given' i.e., it uses pupils scores on achievement tests as the chief outcome.
- iii) The model has inadequately addressed issues of equity and efficiency, which are of primary importance in developing countries. These issues were directly addressed in studies on differential effectiveness in industrialized countries where the effectiveness of the school was distinguished according to sub groups. In developing countries, however, issues of equity and efficiency are addressed primarily at the macro level of educational policies (Scheerens 1999).

School Effectiveness research in developing countries began with a series of studies similar to those undertaken in the US and UK, concerning factors that affect student achievement in countries such as Chile and Uganda (Heyneman 1979). Results of these studies showed a marked difference with studies of industrial nations, on the importance of school related factors in influencing student achievement. These studies were also quantitative in nature, but were from a perspective of 'efficiency' rather than 'equity'. Riddell points out that while research in industrialized countries focused on how schools could compensate for the inequalities inherent in students background, the emphasis in developing countries was on identifying the factors that could provide best education for all within the limited resources (Riddell 1997; Farrell 1993).

Studies on school effectiveness in developing countries which explore the factors contributing to school quality are divided into three strands (i) Production Function Studies (ii) School Effectiveness Studies (iii) School Improvement studies. The findings of each are summarized below:

1. Production Function Studies:

Production function studies have been used extensively as a way to identify factors which produce 'good learning outcomes'. Schools, according to this theory are treated as 'producers' that try to maximize output i.e., achievement measured by test scores. Of the well designed production

– function studies, Heyneman’s study in Uganda demonstrated that specific education inputs generally matter more in low income than in high income countries, and this finding has been supported by many recent studies. Other studies suggest that both the level and mix of educational inputs are important in producing educational outcomes. Studies of North East Brazil by Harbison and Hanushek and of India by G.G.Kingdon as well as evidence from Farrell’s review of studies suggest that investing in learning materials (texts and reading materials) would result in far higher achievement gains than, for example, by investing on teacher salaries (Kingdon 1996 and Harbison and Hanushek 1992 quoted in World Bank article; Farrell 1993).

Table – 4
Increases in Test Scores per Dollar Spent on Input (re : teacher salary)

Input	Northeast Brazil (1980s)	India (1990s)
Teacher Salary	1.0	1.0
School Facility Measure	7.7	1.7
Instructional material	19.4	14.0

(World Bank Article (b))

Scheerens, utilizing Hanushek’s review of evidence from 96 studies, on the estimated effects of resources on education in developing countries, concluded that of all the educational inputs, physical facilities of schools were systematically related to student performance (Scheerens 1999). He points out that the relevance of facilities in education in developing countries, amounts to no less than 70 when expressed as the percentage of significant positive studies. (Scheerens 1999). Using Hanushek’s data, he shows the percentage of studies with positive significant associations of resource inputs variables with achievement, was much more for developing countries than for industrialized countries, as can be seen in the table below. The large impact of human and material resource inputs can be attributed to their larger variance in developing countries, while in industrialized countries, these are distributed in a fairly homogenous way among schools (Scheerens 1999).

Table – 5

Percentages of studies with positive significant associations of resource input variables and achievement for industrialized as compared to developed countries.

(sources: Hanushek 1995, 1997)

Input	Industrialized countries % sign, positive associations.	Developing countries % sign, positive associations
Teacher / Pupil ratio	15%	27%
Teacher's education	9%	55%
Teacher's experience	29%	35%
Teacher's salary	20%	30%
Per Pupil expenditure	27%	50%

(Scheerens 1999)

Glewwe et.al's (1995) study using Jamaican data of primary schools shows that of all the variables examined, the largest impact was seen from never using textbooks in instruction to using them in almost every lesson, which raised reading scores by 1.6 standard deviations (quoted in Glewwe and Kremer 2005). Moreover, Glewwe and Jacoby's 1994 study of Ghana Middle Schools in 1988 – 89 shows that of all the 18 school and teacher variables, school facilities had the largest impact including repairing classrooms and providing blackboards which led to an increase in maths and reading scores (quoted in Glewwe and Kremer 2005).

Heyneman and Loxley studied science achievement in 16 developing and 13 industrialized countries, by using straightforward indicators such as number of texts and desks available, educational level of teachers etc. It was found that the level of school quality made little difference to achievement in industrialized countries, while 9/10th of the explained variance in children's achievement in India was accounted for by differing levels of school quality. The reverse held true for industrialized countries such as Australia where 3/4th of the explained variance in achievement was attributed to family background and only 1/4th to the school variables (Heyneman and Loxley 1983).

Researchers have attempted to explain why in-school factors have such a potent influence on student achievement in the Third World, compared to the limited effect found in

industrialized countries. They point out that (i) baseline levels of resource inputs in developing countries are very low compared to other western countries, so that even a minor infusion of resources will improve student achievement in these settings. This is not the case in industrialized countries where material resources are fairly homogeneously distributed (ii) the school is the exclusive producer of education in developing countries, while in developed countries literacy was actually taught by local churches and parents (Fuller and Heyneman 1989; Scheerens 1999).

The numerous production function studies in developing countries thus suggest that basic resources and facilities play a very important role in enhancing student achievement and if these are absent, it would be detrimental to the educational endeavour as a whole (Scheerens 1999; Glewwe and Kremer 2005; Unesco 2005).

2. School Effectiveness Studies

This strand of research not only emphasized the role of material and human resource inputs in determining student outcomes, but also sought to explore the part played by school organizational factors in impacting student achievement. The task of this research was to identify which school factors were stronger determinants of achievement and therefore better investments in developing countries. Many of them highlighted the interplay between the input and process factors and how these impact student learning. Moreover, they brought out the fact that the quality of a school was linked to the socio-economic context in which it was functioning which may exert positive or negative influences.

Fuller, in his classic study entitled 'Raising School Quality in Developing Countries' attempted to identify those in-school factors that most efficiently raised pupil achievement from his review of 72 empirical studies in developing countries. His findings were (i) there exists a positive relationship between per pupil school expenditure and achievement. The positive impact of material inputs such as instructional / reading materials (text books), desks and school library and school feeding programmes on achievement was consistent across several studies. (ii) teacher quality was found to be related to higher student performance. Achievement effects were consistent with teachers' length of tertiary schooling and number of teacher training courses completed (iii) Most importantly the length of instructional time stood out a consistent predictor of students achievement as was the assignment of homework and the time spent by teachers in lesson preparation. He also provided evidence to suggest that some expensive inputs were not

associated with higher levels of achievement such as small class size, use of science laboratories and teacher salaries (Fuller 1987).

Urwick and Junaidu conducted a qualitative study of Nigerian Primary Schools. Their findings illustrate the multiple links between quality of school facilities and a number of educational process variables which were considered to be important determinants of the quality of schooling. They found that (i) aspects of teaching (methods of teaching and frequency of home assignments) were determined by provision of textbooks, teaching aids etc (ii) the classroom, learning conditions such as pupil attentiveness and opportunities to develop writing and reading skills were determined by school facilities such as classroom maintenance, water supply, textbooks and furniture availability etc. (iii) Teacher morale was also influenced by the physical conditions of the school (Quoted in Pennycuick 1998).

A review of research on factors promoting science achievement in developing countries by Walberg (1991) concluded that in 4 / 5th of the studies, factors influencing achievement, were length of instructional programmes, existence of school libraries and provision of school meals, while in over 2/3rd of the studies, the presence of textbooks and teaching training were important. By contrast in only 1 / 3rd of the studies, factors such as science laboratories, teacher salaries and reduced class size were found to be important (Walberg 1991).

A more recent review by Fuller and Clarke (1994) that considered more than 100 studies, and drew upon the earlier study by Fuller (1987) identified school input and process variables that showed significant positive associations with achievement. These concluded that major positive and consistent school effects were found in 3 major areas:

- i) availability of physical facilities, infrastructure and material resources, text books and supplementary reading materials;
- ii) teacher qualities (teachers own knowledge of the subject and verbal proficiencies, teachers years of tertiary education and teaching training).
- iii) Instructional time and work demands placed on students. (Fuller and Clarke 1994).

The important point made by Fuller and Clarke in their review of research evidence is that it is necessary to pay attention to the cultural contingencies while studying school effectiveness in developing countries, which may explain why some school and classroom variables work in some countries and not in others (Fuller and Clarke 1994).

Studies that concur with the major conclusions arrived at by Fuller and Clarke include those by Lockheed and Verspoor (1991), Heyneman et.al's study in Philippines (1984), Lockheed et.al's study in Thailand (1986), Psachoropoulos and Loxley's study in Tanzania (1986) and Nyagura and Riddell's study in Zimbabwe (1991) (Quoted in Pennycuik D 1998). Similar conclusions were also arrived at by studies such as Farrell (1993), Ross and Postlethwaite (1992) and Kingdon (1996).

Table – 6
Developing Country School Effectiveness Studies

Study	Country	School inputs, teacher attributes, pedagogical practices assessed
Primary school studies Glewwe et.al (1993)	Jamaica	School inputs, pupil tests, time in school, classroom activities, gender effects
Haitaian Foundation (1991)	Haiti	Instructional time, teacher preparation, in-service training
Harbison & Hanushek (1992)	Brazil	Textbooks, exercise books, facilities, teacher training, subject matter knowledge, multi-grade classrooms, salaries, class size.
Johnson (1992)	Swaziland	School library facilities, instructional time, school size, textbooks, desks, teacher training.
Lockheed (1991)	Nigeria	Complex use of teaching materials, class size, teacher gender, testing of pupils
Lockheed et.al (1988)	Philippine	Class size, school size, teacher training, use of science lab, group work, pupil assessment
Mullens (1993)	Belize	Teacher training and prior achievement of teachers
Nyagura & Riddell (1992)	Zimbabwe	Textbooks, teacher gender, age, training level, planning time, class size, instructional time, teacher experience.

(Jansen 1995)

The findings of all these studies once again highlight the predominance of production – function type of studies in developing countries. The studies indicate that financial, material and human resource input variables have been investigated more frequently than school and classroom variables with the exception of instructional time. In this connection, Riddell states that integrated school effectiveness studies comprising input, organizational factors and instructional

variables are lacking in developing countries and are in danger of being lost without having even been explored (Riddell 1997).

Wide ranging studies of School Effectiveness in developing countries include the study of 8 countries by Lockheed and Verspoor (1991); Henevald and Craig's review of research in Sub-Saharan Africa (1996) and Carron and Chau study of the quality of primary schools in 4 different countries - India (MP); Mexico (Peubla); Guinea and China (Zhejiang) (Carron and Chau 1996). These studies have discovered a vast range of factors that are found to be critical in determining school effectiveness in developing countries. Of these, the most significant study is by Henevald and Craig as it propounds a paradigm of school quality concerned with school and classroom level processes of teaching and learning. This conceptual framework is discussed later in this section.

The findings from these and many other similar studies, have also influenced the development of models for understanding the dimensions of school quality such as the model followed by UNICEF (2000) and UNESCO (2005). Both the in-school and out of school factors delineated by these studies, that tend to positively or negatively influence student achievement, have been enumerated below:

i) *Learners' Characteristics* refer to what individual students bring with them to school, which may affect their work in school. These characteristics include the health and nutritional status of children gender, age, parental attitudes and support for learning and early childhood programmes, all of which may influence their readiness to learn and become forceful determinants of achievement. In many developing countries, it has been seen that girls are less likely to enroll and persist in school, and to do well academically. In fact, almost all aspects of school quality have gender implications (Modi et.al quoted in Williams 2001). Carron and Chau's study shows how learner characteristics, such as ill health of children and children of poor families engaged in work, were major causes of absenteeism and affected student learning in Ghana and Mexico (Lockheed and Verspoor 1991; Henevald and Craig 1996; Williams 2001; Carron and Chau 1996; Unicef 2000). Numerous studies in India have shown how the social context comprising caste, class and gender inequalities which constitute the socio-economic background of pupils have greatly hindered their access, participation and achievement in the schools (Reddy S. 2004 a).

ii) *Supporting Inputs and Learning Environments* refer to those community and system level factors which are outside the school, but affect the working of the school. These include –

- a) parental and community support and involvement which may enhance and promote working of the school as for example community provides material support and plays and active role in school governance.
- b) Adequate support from the education system in terms of favourable policies may enhance effectiveness. Schools may need support from the wider educational system on issues such as language of instruction, curriculum etc.
- c) *Adequate Material Support* in the form of textbooks and instructional materials and classrooms with adequate facilities are required for effective schools. Carron and Chau's study shows that in poorer countries of Guinea and India (MP), rural schools lacked school infrastructure and instructional materials so that even minimum requirement for a meaningful teaching – learning process were not fulfilled. (Lockheed and Verspoor 1991; Henevald and Craig 1996; Carron and Chau 1996; Farrell 1993, Unicef 2000 and all other studies discussed earlier)
- d) A peaceful and safe environment, especially for girls is critical for creating a welcoming climate in schools and classrooms which would be conducive for quality learning (Unicef 2000).
- e) Creating inclusive environments by including children of ethnic and language minorities and of lower socio-economic groups, would go a long way in advancement of quality education for all children (Unicef 2000).

iii) *Enabling / Facilitating Conditions* refers to those characteristics of the school that facilitate effective teaching and learning. Thus, the effects of inputs on teaching – learning are mediated by certain school factors which if favourable, promote effective teaching and learning. The facilitating conditions that have been identified through research are the following:

- a) *Effective School leadership* is an important factor affecting student outcomes. A good principal who provides a good school management and mobilizes resources for the whole school and sets a climate of high expectations is important for the schools' quality. Studies show that unfortunately, few head teachers and administrators in developing countries have had any formal training in the leadership functions of

schools. Many heads of schools have teaching and administrative responsibilities leaving them little time for supervision and support of staff (Carron and Chau 1996; Lockheed and Verspoor 1991).

- b) *A capable teaching force* comprising teachers who have mastery over the subject, and teaching experience and also who have spent a length of time in school, positively influence student outcomes. Carron and Chau point out that a number of teachers in China, India, Guinea and Mexico did not possess mastery of the subject matter and this affected the school's quality, since students achievement beyond basic skills depends on teachers mastery of subject matter. Carron and Chau also mention that teacher competence and stability were critical in all countries but serious imbalances were found between rural and urban areas with teachers being more stable in the urban zones (Carron and Chau 1996; Henevald and Craig 1996; Lockheed and Verspoor, 1991, Unicef 2000).
 - c) *Flexibility and Autonomy* marking the schools independence in taking decisions on how time and resources are spent also increases academic performance;
 - d) *High time in school* spent by students, in terms of days in a year and hours in a day is known to increase achievement. Some schools have even organized their schedules according to children's work and this has resulted in greater student persistence and achievement (Unicef 2000). The quality of a school and the quality of teaching is higher in schools that are able to willing to make more efficient use of available time for its teachers and pupils (Verwimp 1999; Lockheed and Verspoor 1991; Henevald and Craig 1996).
- iv) *School Climate* – Factors associated with the climate of the school may also spur students achievement. Though these factors have been primarily researched in the developed countries, there exist only limited studies in developing countries that have examined these issues peripherally.
- a) A few studies show that high expectations of students, by the school head and teachers, resulted in stronger commitment and performance from students whose self concepts were positive (Fuller 1986; Lockheed and Verspoor 1991). In many other countries, such as those in the Carron and Chau's study, it was found that teachers were not aware of the

- schools' role in pupil failure and drop out and blamed the pupil and his background for it. (Carron and Chau 1996).
- b) Positive teacher attitudes may facilitate high performance in schools. The World Bank Report 1994 reports that in African Primary Schools, student achievement may be enhanced, but the teacher's lack of subject mastery and confidence or the ability to teach may hamper the development of such attitudes (quoted in Henevald and Craig 1996).
 - c) Well managed schools and classrooms with order and discipline are indicators of the serious purpose with which schools go about improving students learning. Students and teachers attend classes regularly. Studies in developing countries show that the converse is true and many schools especially in rural zones are characterized by a high degree of student and teacher absenteeism (Carron and Chau 1996; Grover and Singh, 2003; Lockheed and Verspoor, 1991; Unicef 2000).
 - d) An organized curriculum is a contributor to a school's effectiveness. This takes place when basic skills are emphasized, learning outcomes clearly defined and sequenced and integrated across grade levels. The curriculum is organized in a way that permits teachers adapt materials to students needs. Lockheed and Verspoor support the importance of organized curriculum for school effectiveness. The UNICEF report on quality in education points out that the curriculum should include the local and national content (Henevald and Craig 1996; Lockheed and Verspoor 1991; Unicef 2000; Hadad 1990 quoted in Pennycuick 1998).
- v) *The Teaching and Learning Process* refers to the classroom level factors that directly affect student learning including learning time, teaching strategies and student assessment. These also have been only marginally studied in developing countries.
- a) High learning time, which refers to the amount of time a student spends on learning activity, positively influences academic performance. Research from a variety of countries has shown that instructional time is consistently related to how much children learn in the school (Lockheed and Verspoor 1991; Fuller 1986; Henevald and Craig 1996, Williams 2001).
 - b) The use of varied teaching strategies has been regarded as the most promising quality intervention in developing countries. These include giving individual assignments, class

discussions, group work, asking questions, drill and practice etc. Fuller, in his review of studies in developing countries found evidence that when teachers spent more time in class, it improved achievement (Fuller 1986). Carron and Chau found the teaching approach to be teacher oriented, rigid and even authoritarian in the classrooms of the 4 countries that were studied. However, there was a great variation in teaching styles with 'a chaotic teaching practice' existing in the least developed rural areas while a well structured and efficient teaching process marked by a precise teaching plan existed in classes of the urban zones. This difference in teaching styles characterized difference between government and private schools in India (M.P) (Carron and Chau 1996). Lockheed and Verspoor suggest that an emphasis on small co-operative group learning and use of interactive radio were cost effective strategies to improve learning. (Lockheed and Verspoor, 1991).

- c) Frequent homework, assignments and regular correcting of homework is a characteristic of high quality schools (Fuller 1986; Hadad 1990 quoted in Pennycuick 1998).
- d) Regular monitoring of students progress through assessments has been found to lead to effective teaching and learning. This continuous feed back is essential to diagnose what students know and where further instruction is required. Research from developing countries has tended to confirm these findings (Arriagada 1981; Lockheed and Komenan 1988 quoted in Henevald and Craig 1996).
- e) A final aspect of effective teaching and learning is teacher-student relations. Research has documented that in a number of high and low countries, gender bias exists in such interactions. Ethnic and linguistic groups may also be ignored (Modi et.al in Williams 2001).

This collation of evidence from the major studies on school effectiveness in developing countries, has enriched our understanding of the role played by multitudinal factors operating both within and outside the school in determining the school's quality. What is starkly visible in this review is the limited evidence on the positive role played by school organizational and classroom variables in influencing student achievement in developing countries. As seen above, often supportive evidence has taken the converse form i.e., an absence of the identified factors in developing countries, has been found to be the cause of low student learning and school quality.

However, there do exist a limited set of studies that are more recent, which have examined the role of school processes. Hence a closer look at the 4 studies that have investigated the role of school organizational and instructional variables in enhancing student learning is undertaken.

2 a. Studies of School Organization and Instructional Variables

The four studies that examined the role of school organizational variables and teaching practices in influencing students achievement are (i) Nyagura and Riddell's study of primary school achievement in Zimbabwe (1993); Fuller et.al's study of Botswana Junior Schools (1994); Glewwe et.al's study of determinants of achievement in Jamaican Schools (1995) and Vander Werf et.al study of Indonesian schooling (1999).

1. Nyagura and Riddell (1993) studied Mathematics and English achievement in Zimbabwean schools. The data collected yielded information at school, classroom and student level. Apart from the descriptive characteristics like the qualification of head teachers, the more substantive school organizational variables that were studied in Zimbabwean secondary schools included teacher stability, time devoted to school based in-service activities and professional support, to teachers through supervision by the head teacher.

Among the more substantive class and school level variables, the *amount of instructional time* devoted to maths (class level) and *amount of supervision by teachers* had a significant association with achievement. More importantly, one other classroom variable, the *amount of supervised study afforded by the head teacher* had a positive effect on maths achievement. However, at the school and classroom level, *textbook availability* and *teacher training* stood out as the most important factors for both subjects (quoted in Schreens 1999; Riddell 1997).

2. Another study that is an example of more sophisticated school effectiveness research in the third world, is Fuller et.al's study of Botswana's junior schools. It combined extensive qualitative information from classroom observations with the results of achievement tests in English and Maths of students in form 1 and 2. It went beyond examining only physical inputs and used 4 sets of school organization and teaching variables for their effect on language and maths achievement (i) material conditions and school inputs (ii) teacher background and training (iii) teachers beliefs and efficacy (iv) teaching practices and classroom rules.

The study's primary purpose was to examine how much girls achievement was affected by classroom practices. The findings were rather disappointing – girls achievement on math's tests was reduced by teachers use of open ended questions. Thus, the authors questioned the efficacy of considering a set of factors as effective in a new cultural context, on the basis of the industrialized country literature (quoted in Scheerens 1999; Riddell 1997).

3. Glewwe et. al (1995) used data from Jamaican schools to study the determinants of achievement in Jamaican primary education. More than 40 schools and teacher characteristics were examined including pedagogical process variables and management structure. Apart from the physical inputs variables, *pedagogical inputs* (curriculum, instructional time and teacher quality) and *pedagogical processes* were also included (teaching practices in the classroom). School Organization variables included (school climate, autonomy, work centered environment, community involvement et.). Data was collected on school and classroom level variables and analysed by means of econometric methods. The results showed that physical and pedagogical inputs played only a marginal role in explaining differences in cognitive skills. With reference to pedagogical process variables, *doing written assignments in class* had a negative impact on both subjects.

In reading, *intensity of textbook use* and the percentage of *teachers time spent on testing students* had positive effects (raising reading scores by 1.6 standard deviation). Time spent in whole class instruction had a weekly negative effect on maths achievement.

Among the school organization, climate and control variables *discussing pedagogic issues at staff meetings; hours of instructional assistance by the principal, and frequency with which teachers helped each other* had significant positive effects for maths and reading achievement that reached the 10% level.

The authors thus conclude that more than pedagogical and physical input variables, it was *pedagogical processes* that are more often significantly related to student achievement (Scheerens 1999; Glewwe and Kremer 2005).

4. The fourth study that has focused on school organizational and teaching variables is the study of Indonesian primary schools by Van der Werf et.al (1999). Observations and interview methods were used and data analysed by multi-level modeling. Of the 27 school and classroom variables,

the four that had a significant association with maths achievement were *time spent on subject and frequent questioning by teacher; evaluation of teachers and help with homework*. With respect to science achievement, the three variables that were positive and significant were *innovative teaching, evaluation of school quality and availability of student books* (quoted in Scheerens 1999).

Though the studies discussed above are few in number, they are important because they have used in-depth observation methods to study school and classroom processes. These studies do not find a significant impact of school and classroom variables on achievement. It is important to note that the results of these studies do not confirm the findings of industrialized countries where school organizational and classroom variables explained a large part of the variations in achievement outcomes. Rather, the evidence from most of school effectiveness studies in developing countries seem to confirm the importance of material and human resource factors for raising student achievement.

Scheerens has set out to explain the reasons for the relatively low impact of organizational and instructional variables in developing countries –

- i) One important reason appears to be the existence of cultural contingencies brought out by Fuller and Clarke which might help explain why some variables work in one country but not in another.
- ii) In some developing countries, the range of variation in teaching practices is rather limited.
- iii) Research in developing countries has tended to focus on inputs rather than school and classroom processes (Scheerens 1999).

An examination of school effectiveness literature in developing countries would remain incomplete without focusing briefly on a few studies conducted in the Indian context. However, an in-depth perusal of school effectiveness studies in India has been reserved for a later date.

2 b. School Effectiveness – Indian Studies

A brief enumeration of the results from 3 studies on school quality in the Indian context reveals that the findings are similar to those seen above in other developing countries.

1. Govinda and Verghese's study of the quality of primary education in Madhya Pradesh was based on a comprehensive model of effectiveness comprising the human input factors, process factors, their interplay and their impact on student learning (output). The quality of the school was also found to depend on the socio-developmental context in which it was functioning. The study explored the interaction between physical facilities and resources and the teaching – learning process, and how this influenced the third factor i.e., learner achievement, which was taken as an indicator of quality. The study based on empirical evidence of 5 selected localities in M.P. found that –
 - i) The provision of a certain minimum school facilities (level of infrastructure) certainly influenced achievement. After a point, other factors became more significant;
 - ii) The study of private schools in Madhya Pradesh revealed that the time spent by the learner and teacher on teaching and learning activities was highly correlated to achievement;
 - iii) Possession of textbooks emerged as a basic pre-requisite for effective classroom teaching;
 - iv) Regularity of homework was significantly related to school quality;
 - v) Teachers who are well qualified and have undergone professional training perform better in terms of learning outcomes of their students; and
 - vi) Absence of an effective mechanism of internal monitoring and an effective academic leadership were factors that explained low school quality and were hence critical for effecting improvements in school quality (Govinda and Verghese 1993).
2. A study by Grover and Singh tried to identify the factors responsible for the poor quality of schooling in Villupuram and Madurai districts in South India. The study focused on input and process factors that affect outcomes within a given context.

The factors that appeared to be critical and were having a detrimental impact on student achievement were identified as the following:

- i) Lack of material and human resources especially proper classrooms, lack of toilets, teacher absenteeism which was rampant and poor provision of teachers especially in rural areas.
- ii) The lack of effective leadership where the head master's role was limited to routine administrative tasks was a cause for poor quality schooling.
- iii) Non-usage of instructional materials, by the teachers even when present and outdated instructional practices consisting of drill based procedures and rote learning resulted in poor quality of learning.
- iv) Though community and parental participation existed within schools, there was no accountability and monitoring.

As a result of the above mentioned factors, students assessment revealed that most students were not learning (Grover and Singh 2002).

3. Kingdon's study of India examined effects of the 5 teacher variables and 3 school variables on student achievement in class 8. The study revealed that –
 - i) Teacher's years of education had positive impacts on maths and reading scores. An additional year of education raised their reading scores by 0.13 standard deviation.
 - ii) The physical characteristics of the school had significant positive effects on both reading and maths scores, as did the time spent on academic instruction.
 - iii) Larger class sizes were not significantly associated with achievement (quoted in Glewwe and Kremer 2005).

The conclusions drawn from all these 3 studies concur with the findings of studies in other developing countries on the factors that are pivotal for learners achievement. As seen elsewhere the crucial elements appeared to be –

1. The provision of physical facilities and inputs which were necessary, but not sufficient conditions for achievement;
2. Teachers year of education and training;
3. The provision of text books in classrooms; and
4. The amount of instructional time spent by students in teaching – learning activities that significantly influenced achievement.

3. School Improvement Studies

We now turn our attention to the few studies of School Improvement in developing countries. School Improvement research as discussed earlier, is that branch of study of educational change that concentrates on how change occurs in schools. It focuses on strategies and innovations that aim to bring about positive changes in students outcomes, teacher skills and in the institutions' functioning.

The tradition of School Improvement that is widely prevalent in industrialized countries has had a limited impact on research and practice in developing countries. Researchers have questioned the applicability of this model in resource constrained countries. The EFA Report states that even in developed countries, these school level change strategies have been regarded as too expensive and time consuming, and likely to be effective only in schools having a strong capacity for change (Unesco 2005).

One extensive application of this approach in developing countries has been the study by Dahlin et. al entitled 'How Schools Improve' that examined the reforms in 31 rural primary schools of Bangladesh, Columbia and Ethiopia. This qualitative study, categorized schools on the basis of their outcomes, in 3 areas –

- i) degree of implementation of key aspects of reform;
- ii) degree of effect on students, teachers and the school as an organization; and
- iii) degree of institutionalization of reform.

The findings of this study were consistent with that of industrialized countries and some of the characteristics of excellent schools that were identified from the study are the following:

1. The in-service training process is well implemented and regular;
2. Motivation of the head master;
3. Regular supervision;
4. Parental and community support for the schools activities; and
5. Team spirit and a positive attitude to reform;

The study also identified common elements outside the school that make reform successful in the countries studied. These included –

- i) rural primary education was a political priority and hence there was commitment to reform;

- ii) a focus on changing classroom teaching practice and teaching mastery necessary to make reform successful; and
- iii) providing necessary supervision and other staff development assistance necessary to change teaching practices (quoted in Henevald and Craig 1996; Riddell 1997).

Another World Bank Study conducted in Madagascar corroborates the findings of the above mentioned study. The significant factors for the government to influence were identified as community participation, school leadership and teacher guides and text books (Henevald and Craig 1996).

Though as stated earlier, the school improvement approach has limited applicability in the context of developing countries, its key message would be to help people think through the actions required to make schools part of the process of change (Unesco 2005). School Improvement studies have also been limited in the context of developing countries. Hence, more qualitative research of this type that focuses on the implementation of change is urgently required.

4. A Conceptual Framework – Integrating Lessons From the School Effectiveness and School Improvement Models

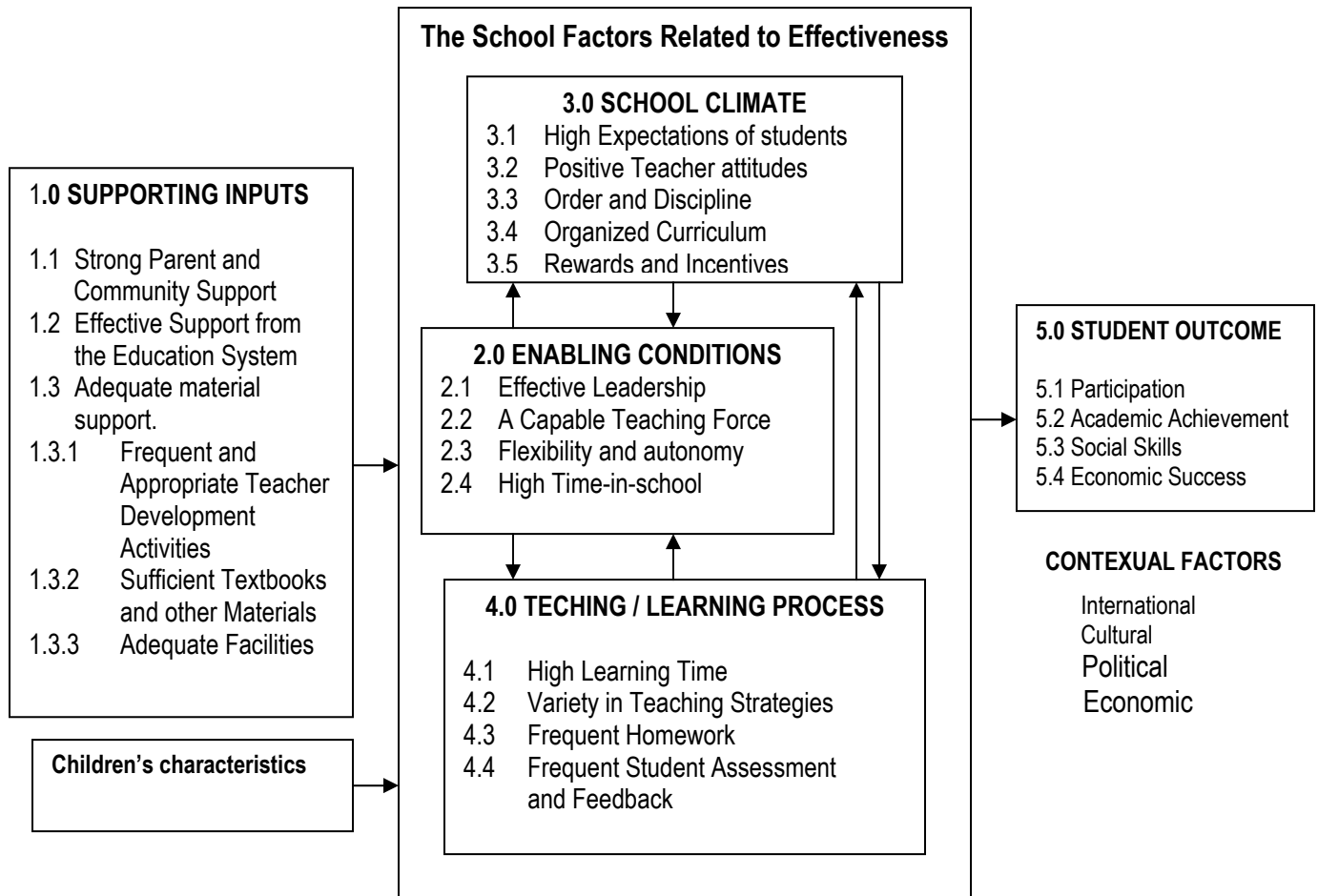
The preceding sections have highlighted the findings of the rather large quantitative school effectiveness research studies, as well as the limited School Improvement research in developing countries, both of which have looked at how to make schools effective from different perspectives. Henevald and Craig, in the mid 1990's, developed a conceptual framework consisting of the factors that are considered to be of greatest relevance in determining school effectiveness in the developing countries even today (World Bank (a)). These were compiled from the findings of school effectiveness and school improvement research studies in developing countries. The conceptual framework identifies 18 key factors that influence student outcomes which are divided into 5 categories –

1. Supporting inputs;
2. children's characteristics (from outside the school);
3. Enabling conditions;
4. School Climate; and
5. Teaching learning process (inside the school).

All of these factors interact with each other and are influenced by the context surrounding the school, which ultimately determines student achievement and consequently the school's quality.

Table – 7

Conceptual Framework : Factors affecting School Effectiveness



(Henevald and Craig 1996)

This framework combines all units of analysis in defining the quality of education – students, teachers and the classroom.

Henevald and Craig put forward the potential uses of this conceptual framework in understanding the factors that determine school effectiveness:

- i) It summarizes for planners and policy makers how schools work;
- ii) It can be used as a starting point for educational reform and programme design;
- iii) It can be used to monitor educational reform programmes and designing teacher training programmes (Henevald and Craig, 1996).

The authors state that the proposed framework must serve only as a guideline. Recognizing that quality is a dynamic concept, they recommend that each country should propose its own set of factors for their particular school systems in defining effectiveness, as the authors had done for Sub-Saharan Africa. The importance of the context in which schools operate would influence the mix of characteristics that work in one setting, which may not necessarily be applicable in another setting.

The factors mentioned in this framework, the authors warn, should be viewed as potential contributors to school quality, not as guarantors of quality. These factors will interact and reinforce each other, e.g., textbooks will be used more effectively if there is good leadership, a stable teaching force etc.

Lastly, the framework should not be regarded as a check list of characteristics of effective schools, which are good, and by which evaluators can monitor schools for 3 reasons (i) the school is the locus of making education effective (ii) all characteristics are mutually reinforcing (iii) the proper mix of these characteristics in one setting depends on the context in which the school operates (Henevald and Craig 1996).

Thus, the review of school effectiveness research in developing countries has brought to the fore a number of important conclusions that may be broadly summarized as:

- i) The results of school effectiveness studies in developing countries have shown a marked difference from the findings of industrialized countries, namely that in the former the quality of in-school factors seemed to influence student outcomes while in the latter home background factors largely seem to explain variances in achievement;
- ii) There appears to be a strong predominance of production function studies here which exhibit that school facilities and the quality of human resources have had a large impact on student achievement; and

- iii) It has demonstrated that school and instructional variables have been little researched in this context, and the studies which are only a limited few do not show any significant impact of school and classroom level variables in enhancing students achievement.

The important lessons that one may learn from this research, which can have implications for further research in school effectiveness, are the following:

- i) Frameworks to understand school quality based on research findings in developed countries cannot be replicated in developing countries;
- ii) Researchers have pointed out that findings from one developing country also cannot be generalized to other parts of the world. This is because of the importance of the context in which each school operates, which may vary from one setting to another. (Farrell 1993; Fuller and Clarke 1994; Henevald and Craig 1996; Govinda and Verghese 1993; Carron and Chau 1996 etc).
- iii) Given the relatively small impact of school and instructional variables on achievement, it does not imply that they deserve lesser attention. In fact, effectiveness studies exploring the role of these variables by in-depth methods are urgently required, for as material and human resources improve in developing countries, the impact of these factors may become visible (Scheerens 1999; Fuller and Clarke 1994).
- iv) The macro level i.e., national policy, resource allocation, and implementation needs to be studied alongside the micro level of the school and classroom, as these are equally important in developing countries for determining the provision of schools and equity of access.

CHAPTER - V

INDICATORS TO MONITOR SCHOOL QUALITY

The chief concern of the previous two chapters has been to review the literature on school effectiveness in order to identify the in-school and out of school factors that were found to be crucial determinants of school quality, defined in terms of students achievement. This chapter focuses on the monitoring of school quality through the development of indicator systems, for it is essential to know not only “which factors work” to make schools effective, but also to identify according to which indicators school quality is being assessed in different parts of the world. According to the US Department of Education “School Quality needs to be defined, assessed and monitored if we are to ensure the existence of quality schools” (NCES 2000). Willms notes that many countries have established programmes to collect indicators of school quality for monitoring performance at national, regional and local levels. Nearly all countries in Europe, the US as well as a number of international organizations are collecting data on a variety of indicators, to assess the quality of their elementary and secondary schools (Willms 1992). This chapter provides an understanding of the emergence of school indicator systems as well as a clarity on the concept of indicators and their usefulness. It elucidates some prominent theoretical frameworks and models of indicators that have been proposed, as well as provides examples of official and unofficial indicator system systems in use today, to assess the quality of schools, through a review of literature. This study pertains specifically to the monitoring of *school quality* and performance and excludes from the discussion, an examination of educational indicators which are wider in scope and outside the purview of this report.

It has been noted that moves to develop indicators of school effectiveness and performance have been guided by broader issues of performance and accountability in schools. The aim of developing indicators has been to make schools more accountable through market forces (Willms 1992). In fact, Creemers points out that the objective of an educational indicator is to tell something about the quality of the system and to enable measures to be taken for their improvement (Creemers 1995). Policy makers are interested in school performance indicators because in this way they are provided with concise and relevant information about the schools and

systems. The information received from indicator systems may be used so that strategies can be devised to achieve educational services of higher quality at a lower cost.

In fact, Willms points out that the collection of performance indicators is not a new phenomenon. Previously, programmes to monitor performance used easy to measure indicators such as graduation rates, pupil - teacher ratios, achievement scores etc. Now, however, administrators are seeking information on a wide range of outcomes including cognitive and affective measures, pupil's family background and various indicators of schooling 'processes' believed to be related to schooling outcomes (Willms 1992). Fitz Gibbon and Suzan Kochan state that today the discipline of school indicator research has emerged independently of the discipline of school effectiveness, as we are moving into an era characterized by the pervasive use of performance indicators (Fitz Gibbon and Kochan 2000).

The case for the introduction of performance indicators flows from the model of the school concerned with its performance or effectiveness, the term being applied to the achievement of the school and its pupils, where pupil achievement indicates acquisition of knowledge and skills assessed on the basis of examination scores. The input-process-output model of school effectiveness assumes that schooling outputs such as academic achievement are predominantly determined by pupil and school inputs, as well as by school related processes that determine a school's context and working. It is well acknowledged that the development of national and international performance indicator systems have been influenced by school effectiveness and educational effectiveness models. As school effectiveness literature has offered valuable information on the factors which make a difference in effective schools, these have served as a useful guide to which indicators may be included in any monitoring system (Creemers 1995; Gray and Wilcox 1995; Willms 1992).

Willms notes that a number of monitoring systems have been based on the input – output model such as (i) Compliance monitoring - which emphasizes schooling inputs (teacher and fiscal resources and measures such as average class size, pupil teacher ratios etc.) and assumes that if specified standards on inputs are met, performance will follow; (ii) Diagnostic Monitoring, which emphasizes the output side of the input-output model (particularly academic outcomes);

(iii) Performance Monitoring, which includes measures of both inputs and outputs, where typically the outcome measures are standardized achievement tests.

Some performance monitoring systems include not only measures of inputs and outputs, but also measures of school processes, but these are usually not well explicated, and not incorporated into analysis arrived at determining why some schools produce better outcomes.

According to Willms, an indicator is simply a statistic describing some feature of the schooling system associated with its performance such as the average test score of a school, the proportion of dropouts or the pupil – teacher ratio. An indicator derives its meaning from its trend over time, from its variation within a sample or from a comparison to some standard (Willms 1992). Gray states that there is a need to establish some general principles for the construction of performance indicators. The most important consideration is that the indicators should directly measure or assess the school's performance (Gray 1990). The other principles for the construction of performance indicators are given in the table below:

Table – 8.

Some general principles for the construction of performance indicators

Performance indicators should:

- (1) be about schools' performance;
 - (2) be central to the processes of teaching and learning;
 - (3) cover significant parts of schools' activities (but not all);
 - (4) reflect competing education priorities;
 - (5) be capable of being assessed;
 - (6) allow meaningful comparisons - over time and between schools;
 - (7) allow schools to be seen to have changed their levels of performance by dint of their own efforts; and
 - (8) be few in number.
-

(J. Gray 1990)

Categories of Indicators: Though extensive work has been done in the area of school indicators resulting in numerous models and frameworks of indicator systems, the task of describing the wealth of available indicators can be achieved by classifying them into 3 categories – inputs into schools, processes in schools and outcomes of schooling (Willms 1992; Postlethwaite 1994; Fitz Gibbon and Kochan 2000). Postlethwaite presents examples of some indicators in which administrators of different countries may be interested as in the table below. Different countries may be interested in monitoring different aspects of school systems. Not all aspects mentioned herein may be of interest to all education systems – for usually, those aspects that are believed to be in order, are not monitored. Thus, Postlethwaite states that what is monitored can differ from one system to another depending on factors such as the maturity of the system, the system's financial condition, and the public satisfaction with the achieved output (Postlethwaite 1994). Regarding the choice of indicators to evaluate schools, it is widely established that the most popular indicator to judge the efficiency of a school appears to be its examination results. However, to monitor the school's quality, other reliable indicators also need to be developed. Postlethwaite observes that it is sometimes debatable whether or not an indicator is classified into inputs, processes or outcomes (e.g., class size can be considered to be an educational input or a process). He puts forward some of the input, process and outcome indicators that are commonly considered in monitoring systems across different countries:

Table – 9

Examples of Indicators of interest to ministries of education

Type of indicator	Examples of indicators
Inputs	Condition of school building Condition of teacher housing School furniture School supplies School laboratories Total number of pupils Age, grade and sex of pupils Number of full-time or equivalent teachers Pupil : teacher ratio Class size

Process	Teacher work load (hours of instruction per week) Teacher perceptions of factors influencing instruction Curriculum (nationally, regionally, school prescribed) Opportunity to learn Hours instruction per subject per grade level Number of pupils studying which subjects per grade Inspectors' visits (how many per term)
Outcomes	Achievement in key subjects at major points in system Percentage of grade group graduating Percentage students obtaining examination results Expectations and attitudes of pupils Absenteeism Violence Drug use Discipline problems

(Postlethwaite 1994)

Ideally, indicators should evaluate both the quantitative and qualitative aspects of schools. The quantitative indicators available in most countries are enrolment ratios, learner achievement levels, qualification of teachers etc. Process indicators which reflect the classroom reality are difficult to measure. Hence, methods of evaluation should include both quantitative data and qualitative information collected through interviews, observations and discussions. Issues pertaining to the development of process indicators are discussed later in this section.

1. Outcome Indicators: These have been the central focus of most accountability efforts and indicator systems. Hence, collection of outcome data typically precedes the collection of other indicators. Most monitoring systems have limited the measurement of outcomes to cognitive achievement, by achievement tests of basic skills in reading and mathematics, because these are easier to measure than affective outcomes. In fact, the aim of monitoring outcomes appears to be (i) to identify those core competencies that are being well achieved or poorly achieved (ii) to identify if achievement levels are remaining constant over time or are improving or deteriorating. Apart from academic achievement, school goals generally include personal and social development of children and vocational training. Willms states that any monitoring system should include performance indicators that reflect the goals of the schools. Hence a wide range of outcomes should be measured includes not only the academic outcomes but also those pertaining to personal and social development. The difficult issue pertaining to the measurement of schooling

outcomes is the identification of school goals, for schools tend to vary in the emphasis they place on different types of goals and on different academic subjects. In fact, monitoring systems that measure only a few aspects of academic achievement are likely to misrepresent the performance of some schools (Willms 1992). Research from the developing countries context has highlighted that participation, regular attendance and completion rates of students, especially in primary schooling, are among the other important outcome indicators of quality schooling, which would need to be monitored.

Fitz Gibbon and Kochan relate the logical outcome indicators that may be assessed to the goals of the school which include flow; cognitive outcomes; affective outcomes; skill outcomes; quality of life and long term outcomes. They state that if all these outcomes are assessed, then we may assume that the major outcomes of schooling are being measured (Fitz Gibbon and Kochan 2000).

Willms states that a related problem concerns whether monitoring systems emphasize excellence or equity. Some schools may do well in bringing all pupils to a minimum standard, but not at helping their most talented pupils excel. Thus, indicators must cover a range of levels of performance describing the distribution of scores in a school, and not just the average scores.

Lastly, Willms points out that nearly all monitoring systems are concerned with pupils achievement status at a particular time, rather than their rate of growth of achievement. A preferable indicator of a school's performance would be the distribution of the rate of growth of its pupils, rather than the distribution on one occasion. Growth measures are more reliable if based on measurement taken on at least 3 occasions (Willms 1992).

2. Input Indicators: Input indicators refer to those conditions or factors such as student and school characteristics which are beyond the power of school to alter but which may affect the outcomes. The input measures explain some of the variance in pupil outcomes which make it easier to determine if particular policies and practices are having an effect and to what extent. Input measures also help assess whether educational interventions have a differential impact on differing types of pupils (Willms 1992).

i) Pupil Characteristics: The relationship between pupils family background and schooling outcomes is well established and if schools have to be compared on their achievement, they must use valid and reliable measures of pupil inputs. It has been observed that outcomes may vary according to students socio demographic characteristics – age, gender, race, ethnicity, linguistic

status, parental occupation and education and family composition - which have proved to be important indicators of pupil background measures. These measures have been found to significantly influence schooling outcomes, completion rates and achievement of pupils especially in developing countries. Willms notes that measures of prior academic achievement of pupils are more important control variables than measures of socio-economic status (Willms 1992).

ii) School Characteristics: Outcomes are also influenced by school inputs such as level of instruction offered (pre-school, primary), the school location, urban, rural setting, its geographic location etc. Indicators concerned with financial status and resources available to the school are also important variables determining outcomes. In almost all the countries, it is the responsibility of the government to provide schools buildings, equipment and school supplies as well as teachers and administrators. Often data is required about such inputs as in many developing countries, it is still important to know how many classrooms are there in a school, how many more are required, whether there are toilets, electricity, water supply etc. This information is needed to know to what extent minimum specifications are being met. Information is also gathered on equipment and supplies provided to schools and classrooms such as school laboratories, libraries, furniture and supplies and these too may vary from system to system (Postlethwaite 1994).

iii) Teachers: Data is also collected on the availability of teachers in schools to enable the calculation of pupil-teacher ratio in each school. Information on sex and age of teachers, whether they are part time or full time, is also often collected.

iv) Decision Making: Another popular indicator is that of the locus of decision making. In some systems data is collected on the different decision making levels in the school systems that are concerned with resource allocation and use, curriculum decision making and pedagogical organization of pupils within the schools (Postlethwaite 1994).

Data on schooling inputs have formed part of the compliance monitoring systems where teacher and fiscal resources are emphasized. These systems attempt to ensure that certain standards of educational provisions are being met. Hence, indicators in such systems include, for example, measures of average class size, pupil - teacher ratios, expenditures on instructional materials, size of library, teacher qualifications, number of support staff etc. The systems that use input indicators believe in the assumption that if schools meet the specified standards on various input measures, then adequate levels of performance will follow (Willms 1992).

3. School process Indicators: It has been observed that there are a number of weaknesses in the input-output model for assessing schools because it has not offered many insights to educators about why some schools are better than others in terms of student outcomes. Willms notes that it is also incorrect to measure only outcomes and presume that the quality of instruction is inferior in low performing schools. Moreover, the input – output model concentrates only on easy to measure indicators leaving out factors which complex, such as ‘school processes’. As Willms points out, the input-output model has failed to specify how policies and practices at one level of the system influence events at other levels (Willms 1992).

Just as ‘processes studies’ became important in school effectiveness research, so too arose the need for process indicators in school indicator research. It came to be recognized that data on school processes is important because it can possibly explain why some schools are performing better than others.

While recognizing the importance of ‘school processes’ in any school monitoring system, educators have made little progress in identifying the key processes indicators related to successful schooling, as this has been a difficult task. Though the literature on school effectiveness offers some guidance, many of the school process factors are complex and multifaceted (e.g., principal’s leadership). Some have differing effects for different types of pupils and across various levels of the schooling system. School processes indicators are difficult to define and measure due to their complexity, their meaning depending in part on the level at which they are measured. Their measurement also requires subjective interpretation and judgment (Willms 1992). The inclusion of process indicators in any school monitoring system means that assessment will have to focus not only on quantitative data collection, but also on qualitative information collected through discussions, observations and interviews. Research on school effectiveness has not shown strong links between processes and outcomes and hence some researchers question whether indicators of school processes are useful. Willms quotes Murmane who cautions against collecting data on school processes since reliable and valid information is difficult to gather given the ever changing policies and practices of schools (Willms 1992). Fitz Gibbon and Kochan point out that the relation between process and outcome indicators are correlational rather than causal and hence should generally be seen only as generating hypothesis (Fitz Gibbon and Kochan 2000).

Despite the problems associated with defining, identifying and measuring school processes, a few well measured indicators of school processes can be used to aid teachers and

administrators in monitoring school quality. Hence, information on school processes can be used together with input and output data to help evaluate school's progress towards enhancing student outcomes.

Willms uses the term schooling processes to describe the factors affecting schooling outcomes such as those associated with a school's context and setting and to the less tangible factors related to the inner workings and climate of the school (Willms 1992).

Researchers thinking about which process indicators to include in a schools monitoring system agree that it is better to measure a few indicators well than to cover the entire set (Willms 1992; Gray 1990). They recognize too that it is not possible to specify a definite set of process indicators that could apply to all schools, in all communities and at all times.

Willms identifies a set of key process indicators, classifying them by the level of the schooling system. He recommends collecting data on the following aspects of schooling:

- (1) Ecology and Milieu constructs – (variables describing the physical and material environment, characteristics of teachers etc);
- (2) Segregation (measures of the extent to which pupils are separated according to social class, gender, race etc.);
- (3) Disciplinary Climate;
- (4) Academic Press;
- (5) Intended – vs – Enacted curriculum;
- (6) Pupil Attitudes;
- (7) Teacher Attitudes; and
- (8) Instructional leadership of Principals

(Willms 1992)

Each of these have a set of variables that need to be measured, though measuring all these constructs well on an annual basis would be a costly exercise. Hence, Willms contends that it may be worthwhile to measure only a few indicators in detail (Willms 1992).

Some process indicators require lengthy detailed questionnaires to measure them well while others such as disciplinary climate / principal leadership may be best measured through interviews and observations. Postlethwaite states that information about school processes is usually carried out by the inspectorates by means of ad hoc sample surveys. This is rarely in a

quantified form and ad hoc surveys involve a great deal of observation work (Postlethwaite 1994; Willms 1992).

Below we describe some of the school processes indicators that have been used to collect information on the role of school processes in determining student outcomes. Postlethwaite mentions the following four school processes indicators that have been more frequently used.

i) Teacher Time: The number of hours a teacher teaches in a class, spends preparing lessons and correcting homework are important pieces of information. In developing countries, information on the working conditions of teachers is also obtained.

ii) Curriculum, Teaching and learning: Administrators in many countries are interested in assessing to what extent national curriculum is being covered. In many countries, this is one of the major tasks of the inspectors. Willms states that studies in the US have found marked differences between the intended and enacted curriculum i.e., the way the subject was actually taught. Thus, the administrators are keen to know if the intended curriculum is well specified and whether there is a tight connection between the intended and enacted curriculum (Willms 1992). Fitz Gibbon and Kochan debate on the issue of how teaching-learning processes in classrooms have to be measured. While direct observations of classrooms are considered time consuming and expensive, whether indicator systems can rely on questionnaires given to students is still being debated (Fitz Gibbon and Kochan 2000).

iii) Opportunity to Learn: Postlethwaite points out that the concept of 'opportunity to learn' is an important cause of learning. This states that if pupils are offered the opportunity to learn something, they will in general learn it, and if not offered opportunity, they will not learn it. He states that there is a growing effort to collect valid information for this concept in each class and in each school. The IEA first attempted to measure OTL, but this measure accounted for differences in achievement between countries and was less successful in accounting for differences among pupils within a country (Postlethwaite, 1994).

iv) School organization: Issues pertaining to how schools organize their classes, the amount of grade repetition, the assessment procedures used, the relations of teachers with parents and the community have also been the focus of data collection by administrators in some countries (Postlethwaite, 1994).

Willms study which discusses indicators of school processes for monitoring school performance emphasizes the following process variables that are often measured through a series of questionnaire items.

v) Disciplinary climate: Disciplinary climate in a school is often measured through teachers and pupils reports of the extent to which pupil's comply with certain rules of conduct. An important aspect of disciplinary climate is whether there is a clear set of rules and if so how rules are perceived and enforced. These questions require interviews and detailed observations.

vi) Academic Press: The term 'academic press' is used to describe the extent to which school staff value academic achievement and hold high expectations of their pupils. The set of indicators measuring academic press include the number of items covering teachers expectations of pupils in academic areas, how time and resources are used. The items should also assess pupil norms for academic success.

vii) Pupil Attitudes: The assessment of pupils attitudes have emphasized pupil satisfaction with school or their assessment of the quality of school life. Epstein and Mc Partland have developed an item scale used to construct 'quality of school life' in terms of 3 dimensions – pupils general sense of well being, pupils' academic behaviour and life plans and pupil's relationship with teachers (quoted in Willms1992).

viii) Teacher Attitudes: A large body of research has attempted to relate teacher commitment and morale to pupils' academic achievement. Willms states that a set of indicators measuring commitment and morale therefore should include direct measures of three aspects of morale – efficacy, meaningfulness and acceptance of school goals and values. It should also include indicators of a number of factors associated with working conditions of teachers that indirectly contribute to commitment and morale (Willms 1992).

ix) Instructional Leadership of Principals: Attempts to measure this leadership quality of principals is fraught with problems. Lists have been used to construct scales producing a single indicator of Principal Leadership. Literature on School Effectiveness provides direction on the type of Principal behaviour that is relevant to schooling outcomes emphasizing the role of the Principal in establishing policies and procedures that facilitate teaching and learning; setting high standards and creating incentives for pupil learning and enhancing teacher commitment by involving teachers in making decisions (Willms 1992).

We have discussed above the possible input, process and outcome variables that might well be included in any indicator or monitoring system. We have also highlighted the problems that may have to be encountered in the measurement of these variables. We now exemplify the above discussions by providing examples of indicator systems used to monitor school quality in different countries as well as put forward a few examples of theoretical frameworks of indicator systems developed by researchers and educators.

Frameworks for Monitoring School Quality and Performance

1. Gray, in his article that discusses the introduction of performance indicators in the UK, propounded the three Sheffield University Performance Indicators which have been drawn from the literature on School Effectiveness. He proposes that a ‘good school’ is one where high proportion of pupils

- i) make above average levels of academic progress
- ii) are satisfied with the education they are receiving;
- iii) have formed a ‘good’ or ‘vital’ relationship with one or more of their teachers

Table – 10

The three performance indicators

Academic progress

What proportion of pupils have made above average levels of progress over the relevant time-period?

Pupil satisfaction

What proportion of pupils in the school are satisfied with the education they are receiving?

Pupil-teacher relationships

What proportion of pupils in the school have a good or ‘vital’ relationship with one or more teachers?

Answer categories for all three questions

All or most	Well over half	About half	Well under half	Few
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(Gray 1990).

The author states that while the sophisticated analysis of pupils academic progress is largely in place, the assessment required in the two other areas (pupil satisfaction and pupil teacher relations) can be undertaken by other experienced practitioners in a more qualitative manner (Gray 1990).

2. Gray, Jeeson and Sime, after culling from the experience of various LEA's in the UK, put forward a framework of monitoring and evaluating a school's quality including a number of variables. In practice, a single LEA would have chosen only 2 or 3 of the variables from the framework.

Table –11

A framework of activities for monitoring and evaluating secondary schools

Core Area	Focused questions	Evidence to be collected	
		Nature of	Frequency
Clarification Of values	General aims; distinctive concerns	Discussion Groups/Workshops; Interviews with (samples) Of) staff across schools.	Every 3-5 years; all (or most) schools
Academic Progress	Exam results: - Overall - English - maths	Data on (large) samples of individual pupils passing through system allowing progress to be tracked,	At least every 2 years all schools
	- science - other 'core' subjects National Attainment Testing	trends over time and like- with-like comparisons to be made.	Focus each time on specific curriculum area; most schools
Other out- comes; and forms of progress	Pupil's attendance; pupils' post-16 destinations	Data on (large) samples of individual pupils, preferably linked directly to academic progress and contextualized.	At least every 2 years, all schools
	Pupils': - behaviour - satisfactions	Combination of techniques, including small surveys, interviews	Focus on specific area each time; some schools

	- attitudes to school - extra-curricular participation.	and direct observation	
Teaching Processes	Pupils' experiences of: - 'active' learning - other innovative styles - relationships with teachers.	Interviews and direct observations	One focus each year some schools each time
Key resources	Class sizes; teachers' Experience	Data from routine administrative sources	At least every 2 years; all schools.
	Use of time; teachers' Expectations	Interviews and direct observation	One focus each year some schools.
Equal opportunities	Gender; ethnicity; social background; entry level Attainment; social Context of school	Analyses of all above by gender; specific enquiries into other four, sometimes involving collection of additional data	Gender; each year; all schools. Others; one focus each year; some schools

(Gray, Jeesson and Sime 1995)

3. Literature on school effectiveness has provided some important pointers to the variables that are to be included in any performance indicator system. Oakes identified three areas which can be regarded critical for indicator development. These are –

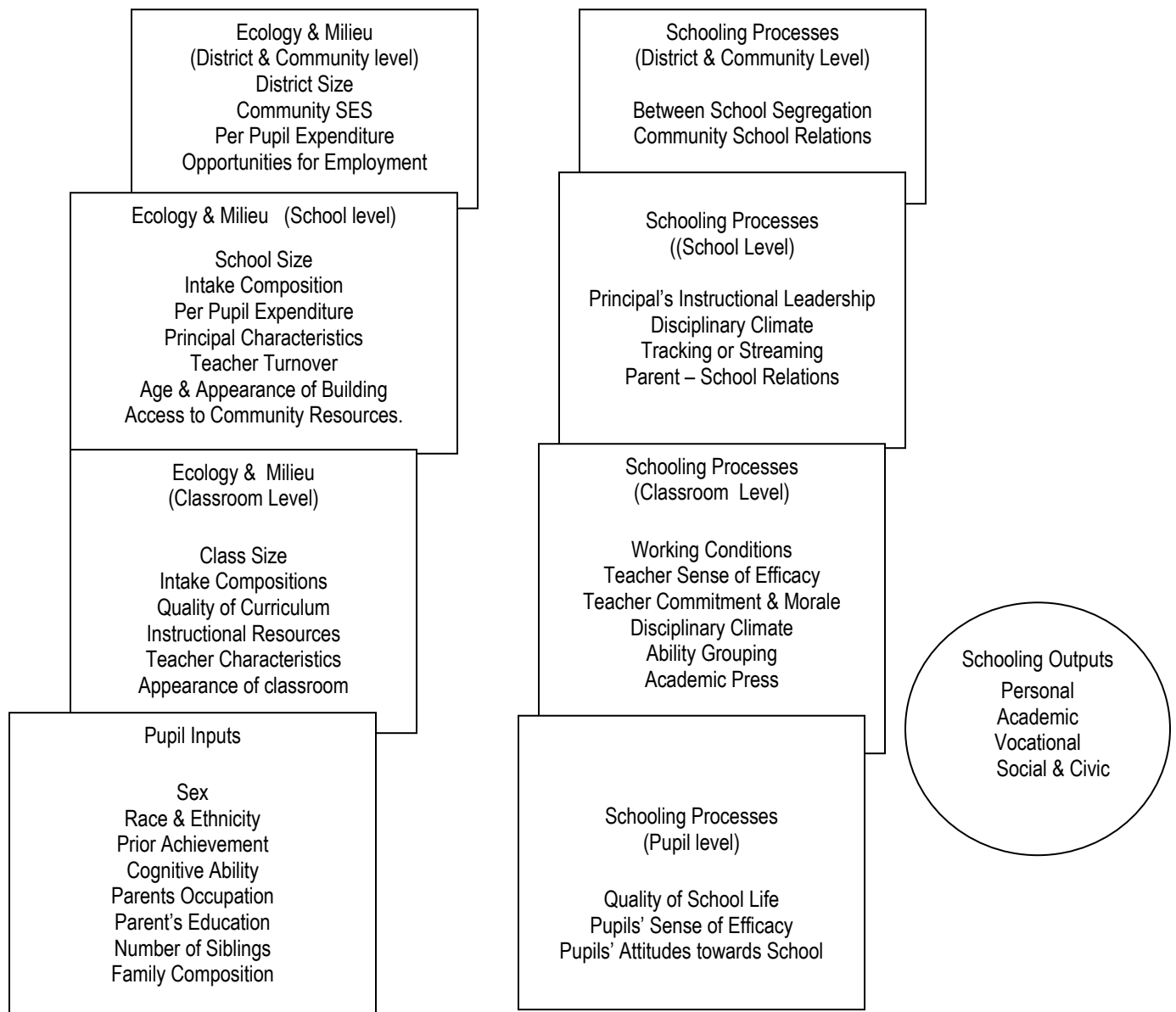
- i) Access to Knowledge: the extent to which schools provide opportunities to pupils to learn domains of knowledge and skills;
- ii) Press for Achievement: the institutional strategies the school exerts in order to motivate and sustain its pupils.
- iii) Professional Teaching Conditions: the circumstances that can empower teachers as they attempt to implement educational programmes.

Oakes claims that the quality of teaching and learning in a school is likely to be a direct function of these enabling conditions which could be operationalized as indicators (Oakes in Gray and Wilcox 1995).

4. Willms presents a theoretical model for monitoring school performance based on the input – process – output model. Here, he sets out to describe what he considers to be the best practice of monitoring school performance rather than describing systems that are currently practiced. The figure below depicts the input-process model proposed by Willms:

Table – 12

The input-process-output model:



(Willms 1992)

The foremost box in the left column shows the main factors comprising pupil inputs. Behind this are boxes comprising other inputs (factors) at the classroom, school and district level. The boxes in the centre column pertain to factors comprising schooling processes at each level of the system – pupil, classroom, school and district. The circle at the right lists the four general domains of schooling outcomes.

This model proposed by Willms attempts to describe the best practice of monitoring school performance. It is an improvement over the basic input output model because it recognizes the multi-level structure of the schooling system. Moreover, it incorporates data on schooling processes, separating them from factors that lie outside the control of teachers and administrators. The set of pupil inputs was reasonably complete according to Willms. Variables to be included on the output side depend on the goals of the schooling system. Willms further states that monitoring systems can be improved by emphasizing pupil growth in achievement, rather than achievement at one particular time. Another way to improve monitoring results is to emphasize analysis that track each school's results over time (Willms 1992).

School Indicator Systems in Different Countries

We now attempt to illustrate our discussion on school indicator systems with examples of official and unofficial indicator systems in place in a number of countries:

Quality Indicators - European Commission Report.

1. The European Commission in the year 2000, brought out the first European Report on the Quality of School Education as this was considered by all the member states as a concern of the highest political priority. Here, the working committee of national experts selected 16 indicators which would provide useful information on quality in European schools. These indicators fall into 4 broad areas –

- i) Attainment: In this area are included 7 indicators of attainment that have been regarded as critical for all European countries in the present and the future. Of these, the easy to measure indicators are *Mathematics, Reading and Science and Civics. ICT (Information and Communication Technology)* and *Foreign Languages* are included in the attainment set, as good data on these is scarce and these would be key indicators in the years to come. ICT, for instance, was selected because it will be a growth area in the future and hence of most critical policy relevance. Last, this area includes the indicator *'Learning to Learn'* which is least developed and covers a less easily measurable set of skills comprising intellectual skills,

attitudes and motivation (such as for example attitudes to one's self, drawing inferences from a text, ability of persistence in the face of difficulty etc.) and motivation to learn. These skills are embedded in all subjects and areas of study and are integral to cross-curricular competencies. Data at the European level, on this indicator, did not exist at the time of the Report. .

- ii) In the area of *Success and Transition* fall 3 indicators of highly significant policy relevance. These are closely inter-related and are i) dropout rate from *school* ii) *completion* of upper secondary education iii) *participation* in tertiary education.
- iii) Two indicators fall into the area of *Monitoring of School Education* and are (i) *Evaluation* and *Steering of School Education* (ii) *Parental Participation*. Both are concerned with stakeholder participation where heads of schools, teachers and parents are key stakeholders.
- iv) The last area termed *Resources and Structures* comprises 4 indicators which underpin school performance and pupil success. These are i) *Educational expenditure* per student, ii) *Education and training* of teachers iii) *Participation rates in pre-primary education* iv) *number of students per computer*.

Table – 13

16 Quality Indicators

<u>AREA</u>	<u>INDICATOR</u>
Attainment	1. Mathematics 2. Reading 3. Science 4. Information and Communication Technology (ICT) 5. Foreign languages 6. Learning to Learn 7. Civics
Success and transition	8. Drop out 9. Completion of upper secondary education 10. Participation in tertiary education
Monitoring of School education	11. Evaluation and steering of school education 12. Parental participation
Resources and Structures	13. Education and training of teachers 14. Participation in pre-primary education 15. Number of students per computer 16. Educational expenditure per student.

(European Commission, 2000)

The 16 indicators listed above aim to provide answers to five key challenges being faced by the European Community – the knowledge challenge, the challenge of decentralization, the resource challenge, the challenge of social inclusion and the challenge of data and comparability.

Data to gather information on the above mentioned 16 indicators of school education have been derived from studies and surveys such as IEA (International Association of Educational Achievement), PISA (Programme for International Student Assessment) and TIMSS (Third International Maths and Science Study), where Maths, Reading and Science abilities are measured covering the educational systems in different countries. Results of data collected on a few indicators of the quality of school education are presented below:

Though data collection took place for the easy to measure indicators such as *maths*, *science* and *reading competencies*, data on the less easily measurable indicators was hard to come by. Data for *ICT* showed that in some European countries, it had not been included in the curriculum. In other countries, it was taught as a separate subject and in yet others, it was used as a tool for other subjects. However, within a few years, most countries would be able to show that ICT permeates subjects across the whole curriculum and would be used routinely. For the *foreign languages* indicator, there was, at that time, no international data available on the linguistic competences of Europeans. For the '*Learning to Learn*' indicator, data at the European level did not exist at the time of the report, but was to be available through the PISA data in 2001. With reference to the indicator on *dropout rates*, the data was based on the 1997 survey and showed that drop out rates in EU were relatively high at 22.5% with northern countries performing better at combating the phenomenon than other member states. The differences between countries was related to differences between education systems and socio-economic disparities which were higher in some countries.

The indicator of *completion rates of upper secondary education* based on data from 1997 labor survey showed that 71.2% of persons successfully completed it in the EU. The indicators to assess the *evaluation of school education*, which could be internal (self) or external, showed that most European countries were seeking a combination of the two forms. At that time, data was available on publication of exam and test results, which were used in the UK for accountability purposes and to raise standards. In France, they were used as bench marks for schools to compare their own performance. The indicator assessing *parental participation* showed that in most countries, parents had a consultative / advisory function (European Commission 2000).

2. School Quality in Europe

In another study of school quality and educational outcomes in Europe, Ammermuller and C.Lauer proposed the following indicators to be used to measure the quality of schools in Europe. They interpreted school quality as the ability of schools to produce education.

i) The category of *Resources* included indicators such as educational expenditure per pupil / student which reflect the extent of educational investment. Several indicators indicate whether money is allocated to ICT, books etc.

ii) The category of '*Teachers and teaching quality*' pertains to human resources which is also very important in producing education. Thus, qualification of teachers, their experience and learning class size or pupil – teacher ratio, would be important indicators of school quality.

iii) Type of School / Class: The type of school e.g., private or public, religious or not, single sex, etc., may indicate different teaching concepts and hence influence educational outcomes. Class composition regarding the average level of the class or its heterogeneity is an aspect of school quality that may affect outcomes.

iv) Institutional Setting: Lastly, institutions were found to play a role in determining a school's quality e.g., the degree of school autonomy regarding the budget or hiring and paying of teachers, which was found to affect the production of outcomes (Ammermuller and Lauer 2005).

In an overview of the distribution of school quality inputs across Europe, basic indicators from those listed above were used to assess school quality. The indicators used data from large scale OECD and Eurydice surveys. It was found that –

- a) the amount of public educational expenditure per pupil varies substantially across Europe with Norway at the top and Hungary at the bottom;
- b) the pupil-teacher ratio indicates the extent of individual teaching which is possible as teaching is expected to be more efficient in small groups. The data showed heterogeneity to be substantial with fewer than 10 pupils per teacher in Denmark to 18 pupils per teacher in Ireland.
- c) The total intended instruction time in hours per year for 9 to 14 year olds in 2002 was found to range from 700 to just above 1000 hours.
- d) In most European countries, the share of students enrolled in private schools was below 10%; but in a few countries, a significant percentage of pupils were enrolled in private schools such as in Spain, France, Netherlands and Denmark and Belgium.

- e) The degree of school autonomy varied substantially across Europe. If measures of this variable encompassed budget autonomy, pay of teachers etc., then the index ranged from 1.5 to 8 in Europe; and if this variable affected outcomes, then one could explain the large cross country differences in attainment.

The study however could not establish a positive link between indicators of school quality used herein and student outcomes. Reasons for this were as follows:-

- (i) individual learning and socio-cultural background of pupils were greater determinants of outcomes than resources / institutions;
- (ii) comparable indicators to be used across countries were either imprecise (expenditure per student) or were missing (e.g., training practices and use of multi-media material; passive – vs – active learning etc., as there are no large scale studies of these variables) (Ammermuller and C.Lauer, 2005).

Though the importance of assessing school quality has been recognized by the US Department of Education, to ensure the existence of quality schools, Fitz Gibbon and Kochan state that the USA has still to develop a national indicator system combining outcome data with information on schooling inputs and processes. Though several models have been recommended, the problem with their implementation is the cost and effort required to collect school process data that precisely reflects the conditions of education. However, majority of States in the US have systems that combine outcome indicators with input and process measures (Fitz Gibbon and Kochan 2000).

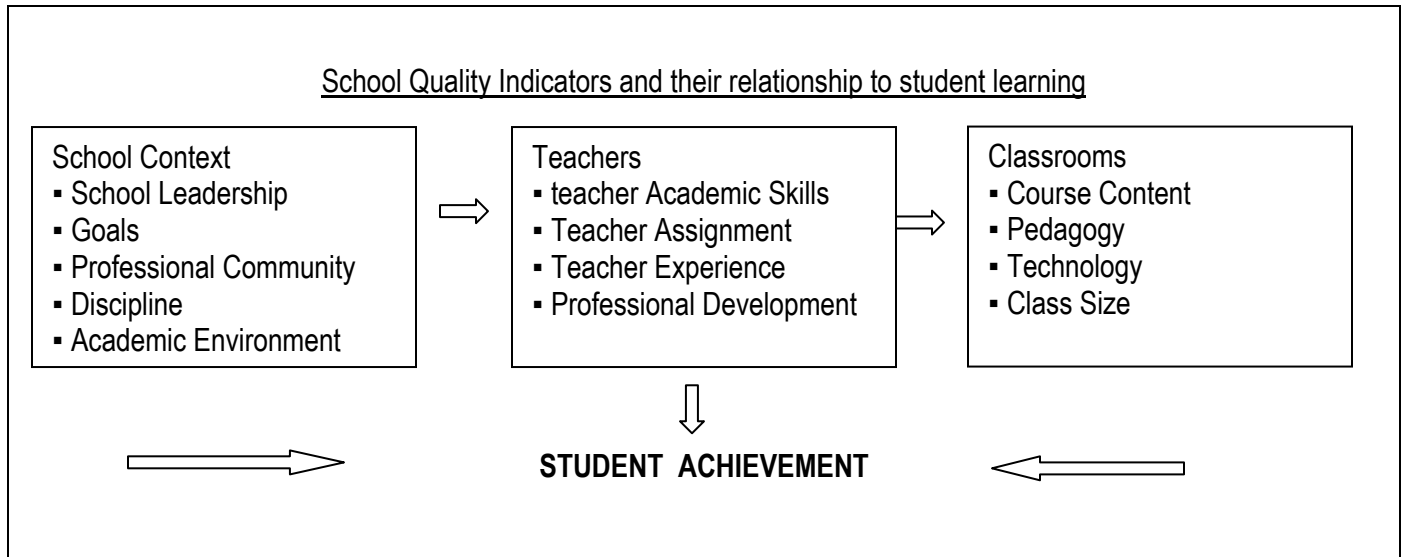
3. Indicators of School Quality - U.S.

The selection of indicators for the assessment of school quality is illustrated best by a report of the NCES (National Centre of Educational Statistics) brought out in the year 2000 that explains why some schools in the US may be better than others at helping students learn. The report highlights 13 indicators of school quality that are related to student learning, which fall into three categories, (i) the characteristics of teachers; (ii) the characteristics of classrooms and the (iii) characteristics of schools as organizations. The report recognizes that though school quality refers to the academic as well as social dimensions of learning, it has focused only on the school characteristics that have been shown to improve student learning.

The report makes clear that no single factor guarantees school quality which is a by product of multiple interdependent elements. Moreover, these school quality factors can affect

student learning, both directly and indirectly. The school quality indicators and their relationship to student learning is demonstrated below:

Table –14



(NCES 2000)

The report stresses that traditionally, in national data collection, policy makers had stressed on an input-output model and only recently has the need been felt for new measures of schooling processes (such as classroom practices, school leadership etc.,) to explain differences between schools on the quality of student outcomes.

This report discusses the indicators that have been included under each level - school, teacher and classroom separately.

Under the category of Teachers, it was found that teachers with high academic skills enhanced student learning. If teachers taught in the field they were trained, and had more than a few years of experience, school quality was enhanced. Teachers were thought to be more effective if they participated in quality professional development, though statistical evidence for this indicator was limited.

To understand effectiveness of classrooms with reference to course content, it was necessary to understand the content of the curriculum. It was found that students who took high level courses learnt more, but this experience was not reflected equally among racial / ethnic and income groups. Students appeared to benefit when the course content was focused and of a high

intellectual rigour. National data on instructional practices (pedagogy) could provide information about low quality classrooms deliver student learning, but it was difficult to isolate and measure pedagogy as it is a complex set of interactions between students, teachers and curriculum.

The indicator on technology revealed that student learning could be enhanced by computers when the computer is used to teach discrete skills. The data on technology measured the availability of hardware and access to internet, providing too little information on the instructional role of technology. With reference to class size, it was found that greater gains in student achievement occurred in classes with 13 to 20 students, compared with larger classes, especially for disadvantaged and minority students.

Indicators pertaining to school context such as those dealing with school leadership, the school goals and development of a professional community clearly affect school quality and student learning. However, national data of these indicators was hard to come by, because these indicators were difficult to define and measure; their effect on learning was indirect and reliable data on these process variables was minimal. Regarding the disciplinary climate indicator, national data on school discipline incidents and policies were well defined, but limited data existed on the implementation of these policies.

The report while assessing the national data on each indicator of school quality found that data was of high quality for indicators of teacher assignment, teacher experience, class size and teachers academic skills, as these were straightforward and easy to measure.

Data on indicators of professional development, course content, technology, discipline and academic environment are of moderate quality, as national data collection efforts of these measures was relatively new. National data on indicators of course content and academic environment was based on course titles and was too vague.

Available data for process indicators such as pedagogy, leadership, school goals and professional community was of poor quality. These indicators are too complex to measure and historically have not been part of national data collection efforts.

The authors of the report conclude by stating that to monitor school quality accurately, better measures are needed and despite the difficulties, efforts to collect such data should not be ignored (NCES 2000).

Having demonstrated school quality indicators with examples from developed countries, we now continue this discussion on the use of indicator systems to monitor school performance

with a few illustrations from the context of developing countries. The first example pertains to the indicator system used in the Quality Package Project of the UNICEF which is being implemented in India across 14,000 primary schools. The second is drawn from Pakistan and delineates the quality indicators drawn from a number of projects aimed at improving the quality of primary education in Pakistan such as the Primary Education Programme (NWFP); Fellowship School Programme (in Balochistan); Community Support Process (in Balochistan) etc. The third example elucidates the quality indicators from the Sarva Shiksha Abhiyan Framework for Programme Implementation of UEE in India.

4. The Quality Package Project of the UNICEF.

This project was implemented in 14,000 primary schools in India. An important innovation of this project was the prior specification of what constitutes quality in four key areas – in-service teacher training and support for active learning, promotion of community participation, Improvements in school and classroom environment and teaching – learning processes. In each of the areas, the current status would be compared to the defined quality specifications in order to ‘map’ to what extent standards were being achieved. Keeping in view the socio economic context of a developing country such as India, the indicators focused on the relevant inputs, processes and outcomes which are critical to ensure that the child secures a quality basic education.

The project identified a few key variables for monitoring. The indicators were structured according to a monitoring model in which services must be available, accessible, and of quality in order to have an impact. Key indicators included:-

- a) the availability of certain facilities, staffing and teaching – learning materials;
- b) teacher attendance;
- c) student enrolment and attendance;
- d) timely task completion;
- e) the quality of the teaching – learning process; and
- f) student completion rates and learning achievements at standard 2 and 4.

The indicators were to be compiled on an annual basis. Head teachers and local resource person would map the quality, once trained. With reference to the quality of teaching – learning processes, it was estimated that there would be a need to develop and use a standard observation schedule and observation method. After a round of base line measurement, completion rates and learning achievement (taken as the main indicators) would be measured in 2007 to arrive at some

conclusions on whether improvements in quality have led to improved completion rates and high levels of learning (Unicef).

The list of quality specifications for the classroom and teaching learning environment and the Teaching Learning Processes proposed by the UNICEF is enclosed in the annexure - 1.

5. Quality of primary Education in Pakistan.

The second example of the use of quality indicators in developing countries has been drawn from the experience in Pakistan, where policy makers have been guided by international knowledge as well as the local situation. The correlates of quality education have been classified into 3 categories – Inputs, Processes and Output standards which are to be gauged by the assessment of learning outcomes and academic audits. The Input, Process and Output Indicators in the Quality Learning Model used by policy makers in Pakistan is given below:

Table – 15

Input, process and Output Indicators in Quality Learning Model

Input

1. Policy administration
 - 1.1 Aims and objectives
 - 1.2 Administrative bodies / administrative authorities
 - 1.3 Delegation of authority and responsibility / decentralization
2. Support Inputs
 - 2.1 Building and physical facilities
 - 2.2 Curriculum and textbooks
 - 2.3 Library instructional materials
 - 2.4 Equipment
3. Teachers
 - 3.1 Academic and professional qualifications
 - 3.2 Terms and conditions and career ladder
 - 3.3 In-service training and professional development
4. Accessibility and fee structure, gender, racial and other equity.

Process

1. School climate / psycho-social environment
2. Teachers
 - 2.1 job assignment of teachers – compatibility with qualifications and workload
 - 2.2 Work environment and relations.
3. Teaching – learning process
 - 3.1 Teaching learning strategies
 - 3.2 Examination and assessment
 - 3.3 Student feedback system

- 3.4 Character building activities
- 3.5 Individualized / remedial instruction activities
- 4. Parent – school / community relationship.

Quality Output

- 1. Participation, retention, and completion rates
- 2. Academic achievement; knowledge, skills and attitudes measured against set standards linked to national goals.
- 3. Personality and other traits
 - 3.1 Healthy and well nourished
 - 3.2 Happy and confident
 - 3.3 Curious and creative
- 4. Student perception of school
- 5. Community's perception of school.

(Unesco 2003)

There have been a series of projects and interventions to promote quality education in Pakistan, and prominent among the ones selected for study were the National Teaching Kit for Primary Classes; The Primary Education Programme; Supplementary Readers in Punjab; Community Support Process (Balochistan) etc. The quality indicators used in some of these projects are discussed below. However, it is evident, that in the most of the projects in Pakistan, the quality of learning has been enhanced mainly by the introduction of quality inputs. Quality outputs are seen in terms of participation, retention, completion rates and academic achievement. The quality processes described in the model have not been measured to a large extent.

Quality Learning is not possible without quality inputs, but a difficult situation existed in Pakistan with over 71% of the schools in rural areas lacked the basic amenities necessary for learning to take place. Moreover the quality of teachers and their qualifications was also a matter of concern.

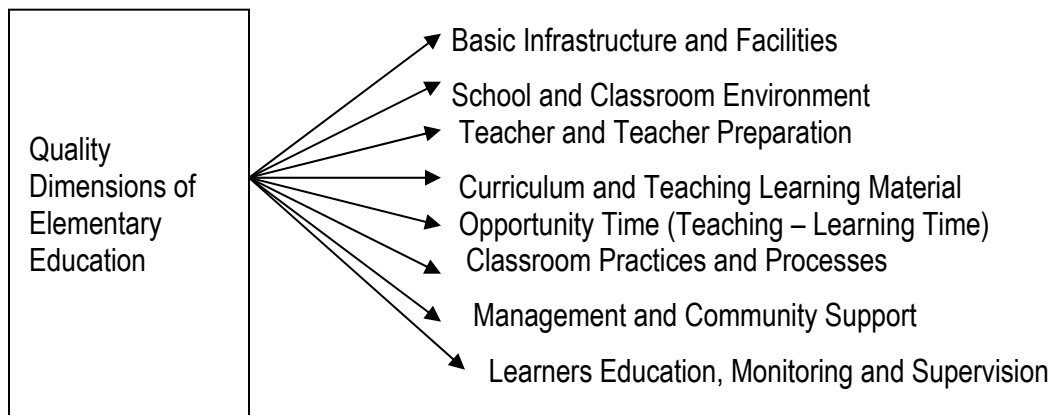
The report described two quality input interventions which played an important role in enhancing student learning in Pakistan. The first was the introduction of the National Teaching Kit in primary classes in Sindh, Punjab and NWFP which proved to be useful in enhancing student learning, as it made the teaching learning process attractive and concrete. The second was the introduction of supplementary readers in the Punjab which was an important input in developing countries, as against developed countries, where children already have access to additional reading material. This resulted in improved reading comprehension scores for both boys and girls.

Another project called 'Parent Teacher Associations' was introduced in the Federal Area where a PTA was set up in each primary school. The Association would seek to increase parent-school community participation and promote a conducive learning environment. This initiative led to positive results by increasing enrolment and retention and leading to improved quality of learning (Unesco 2003).

6. Quality Indicators under SSA.

The Sarva Shiksha Abhiyan programme for the implementation of UEE in India, has emphasized the significance of quality education. Field experiences showed that while considerable progress has been made in access, enrolment and retention of children, quality issues had not been addressed seriously. Hence, in order to get information about quality related parameters, some monitoring systems had to be developed.

The main indicators of the quality of elementary education under Sarva Shiksha Abhiyan are also visualized in terms of inputs, processes and outputs. The desirable output has been regarded as learners achievement, both in curricular and co-curricular areas, for the attainment of which, the necessary inputs and processes need to be provided. While monitoring of the easily quantifiable aspects have hitherto received the attention of planners and implementers, the monitoring of the quality dimension of learning and learning conditions of every child have not received the required attention as these are not easily quantifiable. The quality dimensions of Elementary Education under Sarva Shiksha Abhiyan have been identified as follows:



The NCERT has developed the monitoring formats for quality dimensions of Sarva Shiksha Abhiyan. Some of the suggestive key indicators which may have a direct and indirect effect on improving quality are categorized as follows:

Table – 16

Dimension	Key Indicators
1. Basic Facilities in School	<ul style="list-style-type: none"> • Classroom/space for Learning • Drinking Water Facilities • Storage facilities for drinking water • Toilet Facility • Play ground and Play material facilities <p>Space for activities (individual and group)</p>
2. School and Classroom Environment	<ul style="list-style-type: none"> • Physical Environment <p>Proper lighting facility in the classroom / sunlight</p>
	<ul style="list-style-type: none"> • Social Environment <ul style="list-style-type: none"> - Teacher-Child relationship - Teacher-Teacher relationship - Teacher-Administrator relationship - Sensitive treatment of children from Special Focus groups (SPGs)
	<ul style="list-style-type: none"> • Participation of the Community in the School activities • Pre school facilities • Facilities available for health check up and follow up Measures. • Incentive Schemes <ul style="list-style-type: none"> - Mid-Day meal - Uniform - Books - Scholarship, etc.
3. Curriculum and Teaching Learning Material	<ul style="list-style-type: none"> • Details of Curriculum revision exercise • Existing curriculum and its coverage • Information related to Hard spots (Subject-wise) • Minimum Levels of Learning (MLLs) • Availability of Black board and its use • Availability of Textbooks to children • Textbook production

	<ul style="list-style-type: none"> ● Distribution of Textbooks ● Availability of Teaching-Learning Aids ● Facilities of Library and their use ● Facilities of Laboratory / kits and their use.
<p>4. Teacher and Teacher Preparation</p>	<ul style="list-style-type: none"> ● Teacher profile ● Teacher position (class-wise) ● Class Teacher / Subject Teacher system ● Pre-Service Experience – Its details ● In-service Experience – its details ● Difficulties faced during Teaching (area wise) ● Ability to develop TLM ● Motivation level of Teacher ● Teacher-Community relationship ● On-Site support to teacher ● Role of BRC/CRC in Teacher preparation ● Supervision Mechanism of Teachers work
<p>5. Classroom Processes and Practices</p>	<ul style="list-style-type: none"> ● Details of Classroom organization <ul style="list-style-type: none"> - Seating arrangement - Classroom setting - Display of Material in the classroom - Grouping of Children ● Pupils Teacher Ratio (PTR) ● Methods of introducing the topic ● Teaching-Learning Strategies / Methods followed (Subject-wise) ● Use of Teacher-Learning Aids in Transactional Process ● Involvement of students in Teaching-Learning process ● Assessment procedure followed ● Periodicity / frequency of Assessment

6. Opportunity Time (Teaching - Learning Time)	<ul style="list-style-type: none"> ● Number of days open in a year ● Actual number of days, Teaching – Learning occur in a year ● Number of Teachers in school ● Number of classes each teacher handles (Monograde / Multigrade) ● Learners Attendance ● Teacher attendance (Month-wise) ● Number of days teachers involved in non-teaching assignments in a year.
7. Learner's Evaluation Monitoring & Supervision.	<ul style="list-style-type: none"> ● Policy adopted in the states for <ul style="list-style-type: none"> - Non detention - Grade / Marks - Internal / external examinations - Periodicity of evaluation (Quarterly, Half yearly, Annual) - Reward / Punishment ● Recording procedures in school ● Feedback Mechanism used by teachers ● Involvement of Parents in VEC ● Procedure adopted for diagnostic assessment ● Procedure for Remedial treatment ● Procedure to give feedback to parents ● Outcomes realized

(Quoted in Nanda 2006)

It is evident from the above analysis that the indicator systems in use to monitor school quality have drawn largely from the findings of school effectiveness research in developed and developing countries. This is visible both from the illustration of the theoretical frameworks proposed by researchers as well as in the indicator systems used to monitor school quality in different countries.

The conclusions that emerge from the foregoing analysis of school indicator systems are (i) As schools operate in differing contexts and cultures, it is not possible to specify one set of indicators that may be universally applicable (ii) As collection of data on process indicators is a relatively new phenomenon, it has been proposed that it is better to concentrate on a few

indicators, and attempt to procure accurate information rather than on a large number which do not yield accurate results (iii) Inclusion of school process indicators in any indicator system is a relatively new phenomenon, as traditionally policy makers emphasized only inputs and outcome indicators. The indicator system currently in use in Europe and USA, as seen above, show that even these indicators of school processes have been difficult to define and measure due to their complexity and have thus not yielded accurate and useful, national level data. Hence, to monitor school quality in a superior manner, more refined measures of school processes involving techniques of interviews and observation methods are needed to gather qualitative data. (iv) With reference to the desired outcomes, efforts need to be made to assess higher order intellectual skills as well as skills of current economic relevance as seen in the European models of School Indicators comprising the 'Learning to Learn' and 'ICT Indicator'. Both these are reflective and could demonstrate a higher quality of school education. (v) Finally, it has been noted from the illustrative examples cited above that measuring the quality of input variables is also important especially in the context of developing countries. Hence to gain a comprehensive and holistic estimate of the quality of school education in countries such as India, assessing the quality of input, process as well as outcome variables would be an essential and relevant exercise.

CHAPTER VI

SUMMARY AND CONCLUSION

The prime concern of this report entitled “School Quality – Perspectives from the Developed and Developing countries”, has been to review the available literature on school quality with a view to present to the reader, the main perspectives and conclusions drawn from empirical research, on this subject in different parts of the world. This concluding section attempts (i) to recapitulate the major findings of the study and (ii) to state a few observations that have emerged from this review of literature.

Major Findings:

Chapter - II attempted to provide a conceptual perspective on school quality by examining the various ways in which it has been conceived. The concept of school quality has a descriptive but more importantly a normative usage in the context of education where the term implies a judgment of worth. Multiple meanings have been ascribed to the term education quality, as it has been viewed in myriad ways by educators. These are quality as reputation; quality as inputs and resources; quality as process; quality as content; quality as outputs/ outcomes; quality as value added and quality as selectivity. Though these are the commonly used definitions, an operational definition of educational quality would include a combination of inputs, processes, content and outcomes and their inter-relationships. Hence, though quality of education is most often seen in terms of the learning outcomes of students, to achieve this, the antecedent conditions comprising inputs and processes should also have quality. School Quality was also distinguished in this chapter from associated concepts such as efficiency, equity and improvement.

Having attained some degree of conceptual clarity on what the term ‘school quality’ denotes in the field of education, Chapter III of the report sought to synthesize empirical evidence from school effectiveness research in developed countries in order to identify the factors that influence school quality in that context. The finding of the three strands of research namely School Effects Research; Effective Schools Research and School improvement Research are summarized herein.

i) The School Effects Research, which tried to explain the impact of inputs on student outcomes, discovered that evidence to support the effect of resources and educational expenditure on student performance was rather limited, in these countries.

ii) Effective Schools Research studied the educational processes associated with the school organization and classrooms, in order to understand which factors work to make schools effective. This research showed that 5 school processes that emerged as important for effective schools were strong leadership, focus on learning skills, an orderly school and classroom environment, high expectations of pupils attainment and frequent evaluation of progress. In rich countries, these factors could explain a small proportion of variation in cognitive achievement.

Apart from school level processes, studies on instructional effectiveness sought to examine the classroom practices and processes that determined schooling outcomes. Research suggested that factors such as structured teaching methods, teacher's subject mastery and verbal skills, effective learning time, class organization and management, teaching strategies, assessment and teachers expectations were significant in determining school quality. The role of classroom processes was found to have an average to large effect in improving outcomes.

iii) Finally, the School Improvement Approach was examined. This is an offshoot of School Effectiveness studies and is concerned chiefly with how schools should be changed to make them more effective. The basic tenets of the approach included (i) changing the internal conditions of the schools to ensure 'whole school development' (ii) It was concerned with broader outcomes (iii) it was unique to each school (iv) it emphasized the notion of the self-renewing school where change and development are owned by the school and not imposed from outside. This approach is basically a product of western discourse and part of the change process of schools in developed countries, with very limited application to developing countries.

A new wave of thinking by researchers and practitioners sought to link School Improvement with School Effectiveness thereby ensuring an outcome orientation with a process to achieve change in schools.

Chapter IV attempted to identify the factors that enhanced school effectiveness or quality in the context of developing countries. Findings of this research appeared to be more positive.

i) The majority of the production-function studies suggested that cognitive achievement increased as school expenditure, teacher education and school facilities were enhanced.

Moreover, evidence from experimental studies in low income countries showed that levels

- of cognitive achievement are significantly improved by provision of facilities and resources, provision of textbooks and other materials and reduction in class size. All the above studies offer grounds to believe that resources are very important to the quality of schooling in the context of low income countries.
- ii) The predominance of production – function studies has resulted in school organization and classroom variables being little researched in developing countries. The only school organization variable that was found to significantly enhance achievement was the amount of instructional time spent by teachers and students in the learning activity. The other substantive process variables, identified by a handful of studies were the amount of supervision by teachers; the intensity of textbooks use; teacher time spent on testing students etc. The research evidence demonstrates that these studies, which are limited in number do not show any significant impact of school and classroom variables on enhancing student achievement in developing countries.
 - iii) The School Improvement Approach widely prevalent in developed countries has had a limited impact on research and practice in the resource constrained developing countries. A couple of studies of school improvement in developing countries have found elements of school reform to be similar to those in the industrialized countries. However more qualitative research of this type is urgently required to substantiate this view.
 - iv) One conceptual framework developed by Henevald and Craig that combines the school effectiveness and improvement approaches, is of greatest relevance in determining school effectiveness in developing countries today, as it identifies 18 factors that interact with each other and are influenced by the context surrounding the school, which ultimately determine student achievement and consequently school quality.

The aim of Chapter V was to examine a few theoretical frameworks proposed by researchers as well as to provide illustrations of some school indicators systems in use to monitor school quality in various countries, in order to demonstrate how school quality is being assessed. It is widely established that performance indicator systems have drawn extensively from the input – process – output model of school effectiveness. Indicators have generally been classified into three categories – Inputs into schools, processes in schools and outcomes of schooling. The type of indicators used may vary from one educational system to another, depending on the aspects of school systems to be monitored. The examples of indicator systems portrayed in our study reveal

that in developed countries such as US and Europe, primarily outcome indicators such as student achievement in core subjects is being monitored. The 'Learning to Learn' indicator in the European Indicator System demonstrates the desire to assess the more complex and higher order cognitive skills which could be indicative of a higher quality of education. Attempts have also been made to measure process indicators such as school leadership, school goals and pedagogy as in the case of the NCES School Indicators, but these have met with limited success due to their complex nature and the difficulty in trying to define and measure them.

School quality indicators, as manifest in the examples cited from developing countries have mainly focused on measuring the quality of input variables, though a few process and outcome indicators are also being measured. This emphasis is understandable since quality inputs are fundamental in ensuring quality learning by students, given the socio-economic contexts of developing countries.

Observations:

The major observation of this report is that the meaning of school quality is not a settled matter. The way the term school quality has been understood reflects the values and priorities of different stakeholders and the contexts in which it is used. Because of the multiple meanings attached to this concept, there is also no single way to improve school quality, for strategies to improve quality depend on the particular meaning that has been attached to it.

A striking observation that has emerged from this review of school quality is that world over, school effectiveness or quality has been viewed in terms of cognitive outcomes attained by students i.e., achievement that is easily measured by standardized tests. Though this is indeed the primary concern of schooling, it needs to be stressed that school quality should be defined not only in terms of the cognitive achievement of children, but also by non-cognitive / affective outcomes such as attitudes and values which are so critical for the all round development of every child. Moreover, there is great debate on what cognitive skills comprise and how they can be taught or learnt. Most experts regard rote learning as an indicator of poor quality learning and hence there is an emergent need to develop higher order cognitive skills which would be relevant to the needs of the present day knowledge based economies. An assessment of such intellectual skills would become indicative of a higher quality of student learning and school education. Dede mentions that the greatest challenge facing educators worldwide is to empower all students to master these higher order skills and develop curricula and pedagogies based on electronic information and multi-

tasking which may increase achievement levels of a wide range of students, aiding our society to meet the challenges of the 21st century (Dede, 2004-05).

An important lesson that can be learnt from this research on school effectiveness in developed and developing countries is that frameworks to understand school quality in the west cannot be replicated in developing countries, which are characterized by a different socio-economic context. Research findings have shown that in the developing countries, schooling inputs, such as school facilities and human resources have largely impacted student achievement, while in the developed countries, findings have exhibited the role of school and classroom processes in improving student outcomes. Thus, while improving the quality of schools is of major concern all over the world, there are differing foci and emphases which are largely governed by the local conditions and the socio economic context of different countries.

Lastly, this report makes clear that a comprehensive definition of school quality would include inputs, processes and outcomes of schooling. While the examples of school indicator systems examined herein have focused on a few key indicators, some on outcomes and others on inputs and processes, it becomes clear that any holistic evaluation of school quality would have to incorporate input, process as well as outcome variables which are relevant to the local context. Moreover, the brief review of school indicator systems, in this report suggests that there is a need to develop more refined measures of school and classroom processes so that valuable and accurate data on these can be obtained. In fact, it is said that one of the major challenges in this field lies in identifying qualitative indicators that may be quantified (Antriep Report 2000).

To conclude, it may be stated that this review of literature has enabled us to gain an overview of the way the issue of school quality has been understood and addressed in various parts of the world. Although there is a great deal of diversity in the way school quality is defined, a solid common ground seems to be emerging. As the EFA Report has stated, “the quality of education systems must be seen in the light of how societies define the purpose of education. The principal objectives are to ensure the cognitive development of learners, to enable them to acquire values and attitudes of responsible citizenship, and finally to create education systems that are equitable, inclusive and relevant to local circumstances. Improving the quality of school education has thus become an imperative for assuring that children gain the knowledge and skills to better their lives and play a role in building more peaceful and equitable societies” (Unesco 2005).

ANNEXURE

QUALITY SPECIFICATIONS FOR THE CLASSROOM AND TEACHING LEARNING ENVIRONMENT (CE)

Physical environment of classroom

AREA	MINIMUM LEVEL NON-NEGOTIABLE	EFFECTIVE LEVEL QUALITY SPECIFICATIONS
Available space	Covered classroom space of 6 square feet per student	Covered classroom space 8 square feet per student Create use of space to integrate learning aids (e.g., letters on floor).
Ventilation	Proper ventilation with adequate light (as per engineering norms) Seepage – free and even	Functional electric connection
Storage	Racks for stationery, students' work, TLMs, and school bags Well swept classrooms Clean and dry walls	Racks that students can reach and help themselves Separate dry secure space for mid-day meal material and other supplied material
Roof	Secure and leak-proof	
Security	Doors and windows can be secured	
Cleanliness	Well swept classrooms Clean and dry walls	

Note: matters concerning civil construction should follow MHRD/DPEP/SSA norms. Where possible, constructions should be adapted to local circumstances.

Academic environment of classroom

AREA	MINIMUM LEVEL NON-NEGOTIABLE	EFFECTIVE LEVEL QUALITY SPECIFICATIONS
Seating arrangements	Taat patties for students to sit on One chowki (4x4x1 feet) per four students	
Blackboards	One being functional blackboard that allows for clear writing Blackboard at students' eye level	Extra wall writing space that can be used individually for students. Two functional blackboards placed at either end of the classroom.
Psycho-social	A safe and non-threatening environment, especially for girls No corporal punishment	

School environment:

AREA	MINIMUM LEVEL NON-NEGOTIABLE	EFFECTIVE LEVEL QUALITY SPECIFICATIONS
Water and sanitation Facilities	Availability of sale drinking water Student – friendly toilets (design as per SWASTHH norms). Separate toilet for girls	Availability of soap Number of toilets as per SWASTHH norms
Security and Environment	Hand washing space Maintenance of facilities	Boundary wall with gate Flowers and plants within the wall
Reading Corner	Boundary wall	Boundary wall with gate Flowers and plants within the wall
Facilities for inclusive education	Reading corner in every class, including class 1 One reading primer series per 8 students in Class 1 30 new age-appropriate titles per class per month (on rotation basis)	Outdoor play facilities
Recreation	Ramps (if necessary) Games and toys available and used	

<p>Transaction (including formative assessment)</p>	<p>a. Lesson plan</p> <ul style="list-style-type: none"> ▪ Available for every class/group ▪ Includes a clear indication of the targeted learning outcomes, as well as the steps of the learning cycle (introduction, practice, modes of formative assessment). <p>b. Classroom organization</p> <p>Teacher works with individuals and groups of students, and moves around helping those who need attention Teacher uses pedagogical principles when constituting student groups</p> <p>Groups are organized along inclusive principles and are gender – sensitive</p> <p>c. Practice</p> <p>There is varied material for engaging students to practice for each learning outcome All students complete the practice material for each learning outcome Practice exercises for each learning outcome are corrected signed and dated (Note: Essential list of TLMs to be developed)</p> <p>d. Teaching-learning methodology</p> <p>Students learn through various modes and doing a variety of tasks, and are actively engaged TLMs and other interactive material, which are self-correcting and enable self-assessment, are available and used by students</p> <p>e. Formative assessment</p> <p>Teacher has observation schedules to enable the regular recording of the students’ level of attainment with respect to targeted learning outcomes students’ portfolios are maintained and regularly updated</p>	<p>a. Lesson plan</p> <p>Models of assessment of learning outcomes are indicated.</p> <p>b. Classroom organization</p> <p>Grouping supports movement across groups – not stagnant</p> <p>c. Practice</p> <p>Adequate practice material is available that includes exercises related to:</p> <ul style="list-style-type: none"> ▪ Recall and recognition ▪ Promoting understanding of concept ▪ Support application and creativity <p>There are multi-environment exercises (in/out of classrooms)</p> <p>d. Teaching-learning methodology</p> <p>There are opportunities for peer learning, sharing among students and self-study.</p> <p>e. Formative assessment</p> <p>Teacher continuously identifies to what extent outcomes / competencies are being achieved, in order to encourage the student in its learning, identify learning gaps, and provide remedial / enrichment teaching-</p>
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<p>Summative assessment</p>	<p>Teacher provides feedback, which is specific, remedial, or enriching A competency for which a student receives remedial attention is subsequently reassessed.</p> <p>Done at scheduled intervals in a student – friendly classroom setting and focused on an agreed-upon set of learning outcomes</p> <p>Uses various modes of evaluation, including written, oral, performances and behavioural items/tasks, of which some items are open ended</p> <p>Results are recorded separately for each student for each learning area in each subject Effective feedback is given to students and other stakeholders on a timely basis.</p>	<p>learning experiences, and identify areas in which teaching – learning processes are to be improved or modified</p> <p>Teacher formatively assesses the students’ performance through various modes, such as:</p> <ul style="list-style-type: none"> ▪ oral and written tests ▪ Question / answers ▪ Dialogue and discussions ▪ Games ▪ Projects ▪ Checking and commenting on or marking students’ work <p>A question bank is developed with competency-based items that can be assessed by teachers and students.</p> <p>Pupils have opportunities for self-assessment and peer-assessment and where appropriate, the learning outcomes are phrased in language easily understood by students as the criteria by which they can assess themselves.</p> <p>All major learning outcomes are covered</p> <p>Based and marked on:</p> <ul style="list-style-type: none"> ▪ Clearly stated learning outcomes ▪ Clear criteria for measuring mastery of the outcomes ▪ A uniform written marking system <p>The communication of summative results to students is done in a manner that respects their dignity and self-esteem.</p>
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