Defining Quality in Education

A paper presented by UNICEF at the meeting of
The International Working Group on Education Florence, Italy
June 2000

<u>Executive Summary</u>

During the past decade much has been done globally to provide quality basic education for children, an obligation for the Convention on the Rights of the Child.

In reviewing the research literature related to quality in education, UNICEF takes a broader perspective and demonstrates by this analysis that programmes must encompass a broader definition involving learners, content, processes, environments and outcomes.

__Preface__

Children have a right to an education, a quality education.

Quality education includes:

> Learners who are healthy, well-nourished and ready to participate and learn, and supported in learning by their families and communities;

> Environments that are healthy, safe, protective and gender-sensitive, and provide adequate resources and facilities;

> Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace.

> Processes through which trained teachers use child-centred teaching approaches in well-managed classrooms and schools and skilful assessment to facilitate learning and reduce disparities.

> Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society.

This definition allows for an understanding of education as a complex system embedded in a political, cultural and economic context. (This paper examines research related to these dimensions). It is important to keep in mind education's systemic nature, however; these dimensions are interdependent, influencing each other in ways that are sometimes unforeseeable.

This paper will be important for UNICEF Education Officers to read as they plan programmes that focus on enhancing the quality of education programmes. Knowledge of what has been done in the name of quality education around the world, and what the outcomes have been, will be useful background information for Programme Planning.

Sadig Rasheed
Director Programme Division
UNICEF Headquarters, New York
October   2000

Introduction

> **In all aspects of the school and its surrounding education community, the rights of the whole child, and all children, to survival, protection, development and participation are at the centre. This means that the focus is on learning which strengthens the capacities of children to act progressively on their own behalf through the acquisition of relevant knowledge, useful skills and appropriate attitudes; and which creates for children, and helps them create for themselves and others, places of safety, security and healthy interaction**. (Bernard, 1999)

What does quality mean in the context of education? Many definitions of quality in education exist, testifying to the complexity and multifaceted nature of the concept. The terms efficiency, effectiveness, equity and quality have often been used synonymously (Adams, 1993). Considerable consensus exists around the basic dimensions of quality education today, however. Quality education includes:

> Learners who are healthy, well-nourished and ready to participate and learn, and supported in learning by their families and communities;
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> Environments that are healthy, safe, protective and gender-sensitive, and provide adequate resources and facilities;
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> Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in the areas of literacy, numeracy and skills for life, and knowledge in such areas as gender, health, nutrition, HIV/AIDS prevention and peace;
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> Processes through which trained teachers use child-centred teaching approaches in well-managed classrooms and schools and skilful assessment to facilitate learning and reduce disparities;
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> Outcomes that encompass knowledge, skills and attitudes, and are linked to national goals for education and positive participation in society.

This definition allows for an understanding of education as a complex system embedded in a political, cultural and economic context. This paper will examine research related to these dimensions. It is important to keep in mind education's systemic nature, however; these dimensions are interdependent, influencing each other in ways that are sometimes unforeseeable.

This definition also takes into account the global and international influences that propel the discussion of educational quality (Motala, 2000; Pipho, 2000), while ensuring that

national and local educational contexts contribute to definitions of quality in varying countries (Adams, 1993). Establishing a contextualized understanding of quality means including relevant stakeholders. Key stakeholders often hold different views and meanings of educational quality (Motala, 2000; Benoliel, O'Gara & Miske, 1999). Indeed, each of us judges the school system in terms of the final goals we set for our children our community, our country and ourselves (Beeby, 1966).

Definitions of quality must be open to change and evolution based on information, changing contexts, and new understandings of the nature of education's challenges. New research — ranging from multinational research to action research at the classroom level — contributes to this redefinition.

Systems that embrace change through data generation, use and self-assessment are more likely to offer quality education to students (Glasser, 1990). Continuous assessment and improvement can focus on any or all dimensions of system quality: learners, learning environments, content, process and outcomes. Each of these will be discussed below.

I. Quality Learners

School systems work with the children who come into them. The quality of children's lives before beginning formal education greatly influences the kind of learners they can be. Many elements go into making a quality learner, including health, early childhood experiences and home support.

Good health and nutrition.
Physically and psychosocially healthy children learn well. Healthy development in early childhood, especially during the first three years of life, plays an important role in providing the basis for a healthy life and a successful formal school experience (McCain & Mustard, 1999). Adequate nutrition is critical for normal brain development in the early years, and early detection and intervention for disabilities can give children the best chances for healthy development. Prevention of infection, disease and injury prior to school enrolment are also critical to the early development of a quality learner.

Early childhood psychosocial development experiences.
Positive early experiences and interactions are also vital to preparing a quality learner. A large study in 12 Latin American countries found that attendance at day care coupled with higher levels of parental involvement that includes parents reading to young children is associated with higher test scores and lower rates of grade repetition in primary school (Willms, 2000). Evidence from the Philippines, Sri Lanka and Turkey, and has shown that children who participate in early intervention programmes do better in primary school than those who do not benefit from formal early child programmes, and studies from India, Morocco and Latin America demonstrate that disadvantaged children benefit the most from such programmes (UNICEF, 1998). In addition to cognitive effects, the benefits of good early childhood programmes include better psychosocial development. Effective and

appropriate stimulation in a child's early years influences the brain development necessary for emotional regulation, arousal, and behavioural management. A child who misses positive stimulation or is subject to chronic stress in the pre-school years may have difficulty with psychosocial development later in life (McCain & Mustard, 1999). A high level of quality in early childhood development programmes can be achieved when health and nutrition components are combined with structured psychosocial development in the pre-school years.

Regular attendance for learning.
When they reach school age, research demonstrates that to achieve academically, children must attend school consistently. A child's exposure to curriculum — his or her 'opportunity to learn' — significantly influences achievement, and exposure to curriculum comes from being in school (Fuller et al., 1999). A study of village-based schools in Malawi found that students with higher rates of attendance had greater learning gains and lower rates of repetition, a finding consistent with many other studies (Miske, Dowd et al., 1998).

Family support for learning.
Parents may not always have the tools and background to support their children's cognitive and psychosocial development throughout their school years. Parents' level of education, for example, has a multifaceted impact on children's ability to learn in school. In one study, children whose parents had primary school education or less were more than three times as likely to have low test scores or grade repetition than children whose parents had at least some secondary schooling (Willms, 2000). Parental education not only influences parent-child interactions related to learning, but also affects parents' income and need for help in the home or field — help that often comes at the expense of keeping children in school (Carron & Chau, 1996). Parents with little formal education may also be less familiar with the language used in the school, limiting their ability to support learning and participate in school-related activities.

The effects of schools in poor areas can often outweigh the impact of family background and practices (Fuller, et al., 1999). Further, although many constraints exist, schools can play a role in helping parents to enhance the 'home curriculum' and improve the quality of parental involvement in their children's education. Strategies include, for example, partnering with organizations that can affect parenting in the pre-school years such as public health providers and non-governmental organizations (NGOs); asking parents to participate in assessment of their child's progress, offering clear, regular, non-threatening communication; and including parents in decision-making groups at the school (Redding, 2000). Successful attempts to increase parental involvement have taken place around the world. One example is the creation of student newspapers in China. Such newspapers "exist at different levels of the education system and in urban as well as rural zones. The result is that, much more than in other countries, pupils and parents have the possibility to read, which is of benefit in particular to the otherwise disadvantaged rural families" (Carron & Chau, 1996). Other forms of family literacy programmes have focused on particular aspects of parental involvement. In Sri Lanka, for example, an eight-week

programme that sought to improve the literacy skills of low-income, undereducated mothers found that the mothers' capacities to help develop their children's language competencies increased, especially in the areas of listening and speaking (Dharmadasa, 1996). In sum, the home curriculum seems to play a vital role in preparing quality learners for school.

Healthy children with positive early learning experiences and supportive, involved parents are thus most likely to succeed in school. Quality teachers need similar support for their tasks in schools. Another essential ingredient for a successful educational system is a quality learning environment.

II. Quality Learning Environments

Learning can occur anywhere, but the positive learning outcomes generally sought by educational systems happen in quality learning environments. Learning environments are made up of physical, psychosocial and service delivery elements.

Physical elements

Quality of school facilities.
Physical learning environments or the places in which formal learning occurs, range from relatively modern and well-equipped buildings to open-air gathering places. The quality of school facilities seems to have an indirect effect on learning, an effect that is hard to measure. Some authors argue that "[e]xtant empirical evidence is inconclusive as to whether the condition of school buildings is related to higher student achievement after taking into account student's background" (Fuller, 1999). A study in India, however, sampled 59 schools and found that of these only 49 had buildings and of these, 25 had a toilet, 20 had electricity, 10 had a school library and four had a television (Carron & Chau, 1996).   In this case, the quality of the learning environment was strongly correlated with pupils' achievement in Hindi and mathematics (Carron & Chau, 1996). In Latin America, a study that included 50,000 students in grades three and four found that children whose schools lacked classroom materials and had an inadequate library were significantly more likely to show lower test scores and higher grade repetition than those whose schools were well equipped (Willms, D., 2000). Other studies, carried out in Botswana, Nigeria and Papua New Guinea, concur with these latter findings (Pennycuick, 1993).

Interaction between school infrastructure and other quality dimensions.
The quality of school buildings may be related to other school quality issues, such as the presence of adequate instructional materials and textbooks, working conditions for students and teachers, and the ability of teachers to undertake certain instructional approaches. Such factors as on-site availability of lavatories and a clean water supply, classroom maintenance, space and furniture availability all have an impact on the critical learning factor of time on task. When pupils have to leave school and walk significant distances for clean drinking water, for example, they may not always return to class

(Miske & Dowd, 1998). Even when schools do have adequate infrastructure, parents may be reluctant to allow children — especially girls — to attend if they are located too far away from children's homes. In general, parents often consider the location and condition of learning environments when assessing school quality, and this can influence school participation.

Class size.
Many countries significantly expanded access to primary education during the 1990s, but the building of new schools has often not kept pace with the increase in the student population. In these cases, schools have often had to expand class sizes, as well as the ratio of students to teachers, to accommodate large numbers of new students. A UNICEF/UNESCO survey conducted in 1995 in 14 least developed countries found that class sizes ranged from fewer than 30 students in rural and urban Bhutan, Madagascar, and the Maldives, to 73 in rural Nepal and 118 in Equatorial Guinea (Postlewaithe, 1998). Do larger class sizes hurt the quality of education? Educators and researchers from diverse philosophical perspectives have debated the relationship between class size and student learning at length. Although many studies have found a relationship (e.g., Willms, 2000), class size has not consistently been linked to student achievement (Rutter, 1979, cited in Pennycuick, 1993). This may be due to the fact that many schools and classrooms have not yet adopted the more demanding but higher quality student-centred learning practices discussed in this paper in section four (IV.) of this paper. Moreover, quantitative relationships between class sizes and academic achievement rarely take other key quality factors into account, such as teachers' perceptions of working conditions and their sense of efficacy.

Psychosocial elements

Peaceful, safe environments, especially for girls.
Within schools and classrooms, a welcoming and non-discriminatory climate is critical to creating a quality learning environment. In many countries, attitudes discouraging girls' participation in education have been significant barriers to providing quality education to all students. The Republic of Guinea provides an example of how this barrier can begin to be overcome. Between 1989 and 1997, Guinea was able to increase the percentage of school-age girls enrolment from 17 per cent to 37 per cent. This was done through the establishment of a high-profile Equity Committee, research to better understand various communities' needs and attitudes, policy reforms related to pregnancy of school-age mothers, the building of latrines for girls in schools, institutional reform that brought more women into teaching and administrative positions, and a sensitisation campaign to raise community awareness about the value of girls' education. Although curricular reform and other issues remain to be acted upon, and girls' persistence and achievement have not yet reached the level of boys', this case shows that efforts to improve the learning environment for girls and all students can lead to real results (Sutton, 1999).

Once girls gain access to schools, however, they may experience both direct physical threats and more subtle assaults on their confidence, self-esteem and identity (Pigozzi,

2000). The journey to school may be unsafe, since many girls experience harassment and physical attacks either on public transportation in cities or remote paths in rural areas. At school, teachers often require girls to do maintenance work while boys study or play, and allow boys to bully girls. Girls must often sit at the back of the classroom, where teachers may call on them infrequently. In some cases, extreme physical assault, including rape, may be perpetuated against girls at school. The threats that come in the form of unequal treatment, harassment, bullying and undervaluing girls harm them in profound and long-lasting ways.

Teachers' behaviours that affect safety.
Relative to both girls and boys, parents, educators and researchers express important concerns about teachers who create an unsafe environment for students. In some schools in Malawi, for example, male teachers sexually harassed girls even with outside observers present (Miske, Dowd, et al., 1998). When parents in Burkina Faso, Mali and Tanzania were asked about reasons they might withdraw their children from schools, they most often cited a lack of discipline, violence of teachers towards pupils (corporal punishment), and the risk of pregnancy due to the male teachers' behaviour (Bergmann, 1996). A study in Ethiopia found that nearly 50 per cent of teachers interviewed reported using corporal punishment at least once a week, with 11 per cent saying they use it every day. Just over one third said they never use corporal punishment (Verwimp, 1999). These teacher behaviours affect the quality of the learning environment since learning cannot take place when the basic needs of survival and self-protection are threatened.

Effective school discipline policies.
Well-managed schools and classrooms contribute to educational quality. Students, teachers and administrators should agree upon school and classroom rules and policies, and these should be clear and understandable. Order, constructive discipline and reinforcement of positive behaviour communicate a seriousness of purpose to students (Craig, Kraft & du Plessis, 1998). It is important not to mistake small group cooperative learning for disorder, however; although noise levels may increase, task-orientation and focus on learning signal effective practices. Policies are also needed on bullying, harassment, drug and tobacco use, and anti-discrimination with regard to disabilities, HIV/AIDS and pregnancy.

Inclusive environments.
Reducing other forms of discrimination is also critical to quality improvement in learning environments. Most countries, in all parts of the world, struggle with effective inclusion of students with special needs and disabilities. An examination of special education policies and practices in China, Indonesia, Japan, Malaysia, New Zealand, South Korea, Thailand and Viet Nam found that although most educational policies include some philosophy of inclusion, significant gaps between policies and actual practices in schools and classrooms exist (Mitchell, 1995). Children of ethnic and language minorities, politically or geographically disfavoured groups, and groups at low socio-economic levels may also suffer from discriminatory policies and practices that hinder the advancement of quality education for all children. This can occur by excluding such children from school

or by excluding their participation in school once they are attending. In general, continued restructuring of most learning environments needs to occur to improve learning opportunities for children of all abilities and backgrounds.

Non-violence.
War and other forms of interpersonal and group conflict clearly have an impact on children's mental health and their ability to learn. Many young victims of violence suffer lasting physical, psychological, social-emotional and behavioural effects. Although it is difficult for schools to provide safe havens from some forms of violence, other forms can be effectively prevented through interventions (World Health Organization, 1998).

Service delivery

Provision of health services.
The school service environment can also contribute to learning in important ways. Provision of health services and education can contribute to learning first by reducing absenteeism and inattention. Sick children cannot attend school, and evidence from China, Guinea, India and Mexico shows that children's illness is a primary cause for absenteeism (Carron & Chau, 1996). Today, the potential of school-based health interventions in improving academic performance is becoming increasingly clear as problems of protein-energy malnutrition, micronutrient deficiency disorders, helminthic infection and temporary hunger among children continue to plague developing countries (Levinger, 1992). School-based deworming programmes in Guinea, for example, led to increased achievement outcomes — failing scores fell from 32 per cent to 23 per cent over three years while passing grades improved markedly (Williams & Leherr, 1998). Maximum benefit-cost ratios have been achieved when deworming is combined with sanitation, a clean water supply and health education (Lockheed & Vespoor, 1991). School-based programmes that address other major health and nutrition problems that can decrease cognitive functioning including deficiencies of iron, iodine and vitamin A have also been shown to be effective (Dolan, Drake, Maier, Brooker & Jukes, 2000). Guidance and counselling services, the provision of extra-curricular activities and the provision of school snacks are other examples of service provision that contribute to quality school environments.

High quality physical, psychosocial and service environments in schools set the stage for learning to occur. This learning begins with quality content.

III. Quality Content

Quality content refers to the intended and taught curriculum of schools. National goals for education, and outcome statements that translate those goals into measurable objectives, should provide the starting point for the development and implementation of curriculum (UNICEF, 2000).

Student-centred, non-discriminatory, standards-based curriculum structures.
Research on educational practices and projections about future needs in society contribute to current understanding of the structure of school curriculum. In general, curriculum should emphasize deep rather than broad coverage of important areas of knowledge, authentic and contextualized problems of study, and problem-solving that stresses skills development as well as knowledge acquisition. Curriculum should also provide for individual differences, closely coordinate and selectively integrate subject matter, and focus on results or standards and targets for student learning (Glatthorn & Jailall, 2000). Curriculum structure should be gender-sensitive and inclusive of children with diverse abilities and backgrounds, and responsive to emerging issues such as HIV/AIDS and conflict resolution. In all content areas, curriculum should be based on clearly defined learning outcomes and these outcomes should be grade-level appropriate and properly sequenced (see, for example, Kraft, 1995).

Uniqueness of local and national content.
The specific content of school curriculum, however, depends on local and national values. In the main subject areas of primary education, which include language, math, science and social studies, little variation is found among different regions in the developing world. Nation states, however, "tend to have a high degree of consistency in curriculum emphasis over time, but differ sharply from each other, reflecting unique historical patterns" (Benavot & Karmens, 1989, cited in UNICEF, 2000). Local level interests may also have an impact on and contribute to the quality of educational content. Based on community priorities, the Mali Community Schools project, for example, successfully incorporated local knowledge into traditional subject areas (Muskin, 1999). In all countries, however, quality content should include several pivotal areas. These include literacy, numeracy, life skills and peace education — as well as science and social studies.

Literacy.
Literacy, or the ability to read and write, is often considered one of the primary goals of formal education. Policies and practices in education for literacy vary significantly among countries. A recent UNICEF study on curriculum showed that in some cases, literacy skills are taught as a separate subject, in a language course, where the instruction tends to focus on teaching the language as an end in itself. Such an approach tends to be linear — first teaching aural skills, then speaking, reading and writing skills. Alternatively, literacy skills may be developed through other subjects such as social studies or science. The UNICEF study found that in these cases, there is a greater focus on language as a tool for social development; situations from daily life are incorporated into activities that foster the acquisition of reading and writing skills (UNICEF, 2000). Attention to the way literacy is developed is critical since research has shown that language learning cannot be separated from content. The learning context and agendas people have for learning to read and write have an important impact on the development of literacy skills (Furniss & Green, 1993).

Numeracy.
As quantitative data become increasingly prevalent in many societies, the concept of numeracy seems to be evolving. Also known as 'quantitative literacy', numeracy

encompasses a range of skills from basic arithmetic and logical reasoning to advanced mathematics and interpretative communication skills (Steen, 1999). Numeracy differs from mathematics; while mathematical skills support numeracy, the latter represents the ability to use a range of skills in a variety of contexts. Because mastery of many curricular areas requires numeracy — from geography and social studies to science and vocational training— many mathematics educators advocate teaching numeracy skills in an integrated way rather than as an isolated subject in a mathematics course (House & Coxford, 1995). Numeracy skills not only give people more control in their daily lives through, for example, more informed management of household or small enterprises, but also allow for more effective participation in communities and nations, since understanding many collective issues requires an ability to make sense of financial and other quantitative information.

Life skills.
The term 'life skills' can be broadly interpreted, and is often assumed to include such topics as health, hygiene, etiquette, and vocational skills. In UNICEF, however, life skills are defined as "psycho-social and interpersonal skills used in every day interactions…not specific to getting a job or earning an income". The definition also explains that "a wide range of examples exist under the UNICEF working definition of Life Skills, such as assertion and refusal skills, goal setting, decision making and coping skills" (UNICEF, 2000). Life skills curriculum focuses on attitudes, values and behavioural change, rather than seeking to provide young people with a body of knowledge about a set of topics. As with literacy, age-appropriate life skills can be incorporated into other areas of study. For example, educators in Rwanda teach life skills as part of courses on conflict resolution, self-awareness, cooperation and communication. In Zimbabwe, aspects of life skills come through HIV/AIDS courses (UNICEF, 2000). Other countries may address some aspects of life skills through community-based learning. Still others approach life skills topics in courses such as health education, education for development, global education and peace education.

Peace education.
Peace education seeks to help students gain the ability to prevent conflict, and to resolve conflict peacefully when it does arise, whether on the intrapersonal, interpersonal, intergroup, national or international level. Peace education addresses cognitive, affective and behavioural learning and can occur both within schools, through curriculum development and teacher education, and outside of schools, through camps, sports and recreation programmes, youth groups and clubs, and training for community leaders, parents, librarians and the media (Fountain, 1999). Although few research or evaluation studies have examined peace education, some evidence exists that anti-violence programmes can be effective. For example, when an evaluation of a school-based, trauma-healing and peaceful problem-solving programme was carried out in Croatia (UNICEF Croatia, 1997, cited in Fountain, 1999), evaluators noted a positive effect on decreased post-traumatic stress and improved self-esteem in female students. The programme appeared to promote a good psychosocial climate in the classrooms involved. A Norwegian programme to reduce bullying found that participating children reduced their

expressions of aggression and antisocial behaviour by 50 per cent over two years. The effects were more significant in the second year than the first (World Health Organization, 1998).

Challenges in reaching large numbers of children with quality content.
Educators who seek to maintain and expand programmes that successfully address important curricular content such as life skills and peace education may face challenges.Some evidence suggests that expansion beyond pilot programmes often falters even when pilot programmes are successful and educational agencies provide adequate resources for the development and implementation of curriculum that responds to emerging issues. Several reasons for this exist (Obanya, 1995), including:

> Teachers often find curricular integration and interdisciplinarity difficult, especially when the teacher does not have a role in curriculum design;

> Subjects that do not appear on important examinations are not always taken seriously;

> Social attitudes towards the subject may not be favorable, and cultural patterns are difficult to change;

> Ideas conceived in other regions of the world may not be adequately adapted to the local context;

> Political and economic instability can lead to discontinuity in policies and programmes, as well as teacher and administrator turnover.

These obstacles pose serious but not insurmountable challenges to educational programming. The value of quality content, however, makes finding solutions to such challenges critical. To be most effective, quality content must be situated in a context of quality processes.

IV. Quality Processes

Until recently, much discussion of educational quality centred on system inputs, such as infrastructure and pupil-teacher ratios, and on curricular content. In recent years, however, more attention has been paid to educational processes — how teachers and administrators use inputs to frame meaningful learning experiences for students. Their work represents a key factor in ensuring quality school processes.

Teachers

Professional learning for teachers.
The highest quality teachers, those most capable of helping their students learn, have deep mastery of both their subject matter and pedagogy (Darling-Hammond, 1997). The preparation that teachers receive before beginning their work in the classroom, however,

varies significantly around the world and even within the least developed countries. In Cape Verde, Togo and Uganda, for example, 35 per cent to 50 per cent of students have teachers who had no teacher training. Yet in Benin, Bhutan, Equatorial Guinea, Madagascar and Nepal, over 90 per cent of students do have teachers with some form of teacher training. In these latter countries, most teachers have, at least, lower secondary education; this contrasts sharply with Cape Verde and Tanzania where over 60 per cent of students have teachers with only a primary education (Postlewaithe, 1998). Perhaps as a consequence of too little preparation before entering the profession, a number of teachers in China, Guinea, India and Mexico were observed to master neither the subject matter they taught nor the pedagogical skills required for good presentation of the material (Carron & Chau, 1996). This affects educational quality since student achievement, especially beyond basic skills, depends largely on teachers' command of subject matter (Mullens, Murnance & Willett, 1996) and their ability to use that knowledge to help students learn. A recent evaluation of the East African Madrasa (Pre-school) Programme noted the importance of mentoring by trainers in the form of continuous support and reinforcement of teacher learning by on-site visits to classrooms following a two week orientation training and alongside weekly trainings in Madrasa Resource Centres. (Brown, Brown & Sumra, 1999).

Teacher competence and school efficiency.
Whether a teacher uses traditional or more current methods of instruction, efficient use of school time has a significant impact on student learning. Teachers' presence in the classroom represents the starting point. Many teachers face transportation and housing obstacles that hinder them from getting to school on time and staying until school hours are over. Many teachers must hold second jobs, which may detract from the time and energy they expend in the classroom. Teachers may miss school altogether. A study in China, Guinea, India and Mexico found that nearly half the teachers interviewed reported being absent at some point during the previous month (Carron & Chau, 1996), requiring other teachers to compensate for them or leaving students without instruction for the day. Next, when teachers are present, learning occurs when teachers engage students in instructional activities, rather than attending to administrative or other non-instructional processes (Fuller, et al., 1999). As mentioned above, the opportunity to learn and the time on task have been shown in many international studies to be critical for educational quality. Finally, some schools that have been able to organize their schedules according to children's work and family obligations have seen greater success in student persistence and achievement. In Ethiopia, for example, schools that began and ended the day earlier than usual and that scheduled breaks during harvest times found that educational quality improved. "The quality of a school and the quality of teaching of the individual teacher is [sic] higher in schools that are able (and willing) to make more efficient use of the available time of its teachers and its pupils" (Verwimp, 1999).

Ongoing professional development.
Professional development can help overcome shortcomings that may have been part of teachers' pre-service education and keep teachers abreast of new knowledge and practices in the field. This ongoing training for teachers can have a direct impact on student

achievement. Case studies from Bangladesh, Botswana, Guatemala, Namibia and Pakistan have provided evidence that ongoing professional development, especially in the early years after initial preparation and then continuing throughout a career, contribute significantly to student learning and retention (Craig, Kraft & du Plessis, 1998). Effective professional development may take many forms; it should not be limited to formal off-site kinds of programmes. Dialogue and reflections with colleagues, peer and supervisor observations and keeping journals are all effective ways for teachers to advance their knowledge (UNICEF, 2000). A programme in Kenya, the Mombassa School Improvement Project, built on this approach to professional development and showed that teachers supported with in-service as well as external workshop training improved significantly in their abilities to use child-centred teaching and learning behaviours (Anderson, 2000). In India, an effective programme used interactive video technology to reach a large number of teachers who sought professional development. This programme found that training using interactive video technology led to improved conceptual understanding of pedagogical issues for a large number of geographically dispersed teachers (Maheshwari & Raina, 1998).

Continuing support for student-centred learning.
Teacher education, both pre-service and in-service, should help teachers develop teaching methods and skills that take new understandings of how children learn into account. Just as curriculum should be child-centred and relevant, so should instructional methods. The limited view of teaching as presentation of knowledge no longer fits with current understandings of how and what students learn. Instead, instruction should help students build on prior knowledge to develop attitudes, beliefs and cognitive skills; as well as expand their knowledge base. Teaching styles in many places, however, remain traditional, teacher-centred and fairly rigid or even authoritarian (Carron & Chau, 1996). When Ethiopian teachers were interviewed about the degree to which their teaching practices were learner-centred and relevant to student's lives, about half said they link lessons to the daily life of pupils at least once a week. Almost two-thirds, however, said they never or rarely ask pupils what their interests are, or what they would like to learn (Verwimp, 1999). Greater understanding of student-centred learning can be encouraged through programmes such as the Bangladeshi project on Multiple Ways of Teaching and Learning. Begun in 1994, the project helps improve teachers' skills by integrating brain research and multiple intelligences theory as the foundation for understanding children's needs (Ellison & Rothenberger, 1999). Teaching methods that facilitate active student learning rather than promote passivity and rote memorization represent a new and difficult paradigm for many teachers, but one that needs to be understood and put into practice if learner outcomes are to improve. Life skills is a term which UNICEF uses in two main ways, (i) to refer to a broad group of psychosocial and interpersonal skills, and (ii) to refer to the process of teaching and learning about these skills. As such, it is important to discuss life skills in terms of essential **content** (see section three (III.) of this paper) and **processes** related to life skill-based education. Teaching and learning about life skills requires interactive, student-centred methods. Since skills are by definition active, competency is unlikely to be developed without active practice.

Active, standards-based participation methods.
Education that supports and empowers both teachers and students through democratic processes increasingly defines quality in the 21st century. An example of how schools might organize learning activities around these principles comes from Uganda. With help from USAID's Improving Educational Quality project, researchers collaborated with teachers in primary schools in Uganda to develop action research opportunities for students that would exemplify empowering student-centred education. In one school, for example, students identified the problem area of student tardiness and selected it for study. They collected and analysed data tracking attendance and mapping the homes and routes tardy children took to school. Based on these data, more punctual students teamed up with their slower classmates who lived nearby, and devised systems to encourage them along (Kanyike, L., Namanya, P., & Clair, N., 1999). Among other things, this type of learning activity promotes critical thinking, problem solving, teamwork, and community involvement. Such activities can build the attitudes and values in children that contribute to democratic societies.

Teacher feedback mechanisms.
Good teachers are skilled not only in instructional methods, but also in evaluation and assessment practices that allow them to gauge individual student learning and adapt activities according to student needs. This process should include both performance assessment and assessment of factual knowledge. Observations in Guinea and India found that teachers are very poorly trained in evaluation techniques, and the reality is far from the continuous evaluation procedures recommended by official programmes (Carron & Chau, 1996). Indeed, many teachers and educational systems continue to rely almost exclusively on traditional paper-and-pencil tests of factual knowledge that tend to promote rote memorization rather than higher order thinking skills (Colby, 2000).

Teacher beliefs that all students can learn.
The way time is used is related to school priorities and expectations. Quality education puts students at the centre of the process; student achievement must be the school's first priority. Since schools exist because of students, this would seem self-evident. Perhaps because of the complexity of educational systems, however, teachers may not always believe in the school's ability to help all students. For example, teachers interviewed in Guinea and Mexico had little awareness of the school's role in pupil failure and dropout. Instead, they tended to blame the pupils and their family environment (Carron & Chau, 1996). Research around the world has shown that low expectations for student achievement permeate educational systems. Rather than setting high standards and believing that students can meet them, teachers and administrators in many developing countries expect that up to half the students will drop out or fail, especially in primary grades. Schools committed to student learning communicate expectations clearly, give frequent and challenging assignments, monitor performance regularly, and give students the chance to participate in and take responsibility for diverse school activities (Craig, Kraft, & du Plessis, 1998).

Teachers' working conditions.

Teachers' working conditions affect their ability to provide quality education. Many aspects of school life and educational policy go into teachers' perceptions of their employment. As mentioned above, the condition of infrastructure, availability of textbooks and learning materials and class sizes all influence the teacher's experience as an educator. Teachers' remuneration also matters. In many countries, teacher salaries have declined in recent years, and teachers are not always paid on time. In Bangladesh, Nepal and Uganda, for example, the teachers of 27 per cent, 35 per cent and 60 per cent of all students, respectively, were paid a month or more late (Postlewaithe, 1998). Low and late remuneration may lead teachers to take on another job, which hurts student learning. A study in 12 Latin American countries found that children in schools where many teachers work in other jobs in addition to teaching are 1.2 times more likely to have lower test scores and/or higher grade repetition (Willms, 2000). Effective teachers are highly committed and care about their students (Craig, Kraft, & du Plessis, 1998); they need supportive working conditions to maintain these positive attitudes.

Supervision and support

Administrative support and leadership.
The quality of administrative support and leadership is another critical element in school processes, both for students and for teachers. At a more macro level, ensuring financial resources for education, especially for recurrent budgets is a necessity. Teachers need governments who are supportive of education systems. Organizational support for teaching and learning takes many forms, including such measures as advocating for better conditions and professional development, respecting teachers' autonomy and professionalism and developing inclusive decision-making processes. Such support has been shown to have impact on student learning. In Malawi, for example, supervisors in the schools that showed the greatest learning gains regularly evaluated teachers, contributing to professional development and improved teaching practice (Miske, Dowd et al., 1998). Unfortunately, however, few head teachers and administrators in developing countries have had any formal training in the leadership functions of schools, and promotions may not be based on leadership or management skills. Further, many heads of schools continue to have extensive pedagogical responsibilities in addition to administrative ones. This leaves little time for supervision and support of staff (Carron & Chau, 1996). In spite of practical constraints, programmes designed to increase professionalism in schools through management training, such as one sponsored by SIDA and conducted in disadvantaged districts in Sri Lanka, show that interventions in this area can have a real impact (Perera, 1997).

Student access to languages used at school.
The languages schools use for instruction can have an impact on learning and academic achievement in general. Research suggests that many benefits can be gained by beginning primary education in the student's home language. Yet in Africa, especially in French-speaking West Africa but not excluding anglophone areas, resistance to primary instruction in the local language persists. Obstacles to language policy implementation exist in other regions as well, for several reasons. Many parents and teachers believe that

learning in the mother tongue can impair learning French or English later. A belief exists that African languages are not equipped to deal with scientific and technical concepts; and many parents refuse to have their children learn a national language when they consider it to have been imposed for political rather than socio-linguistic or demographic considerations (Obanya, 1995). Parents' expected outcomes might also explain resistance to primary education in the home language. Parents want their children to master languages early — learning English in Pakistan, French in Mali, or Spanish in Ecuador and Peru — since they view it as critical to improving life chances for their children (Bergmann, 1996). A problem not often addressed is the transition the students must make from using the home language to using the national language, and the lack of learning resources and teacher support which is available to bridge this important linguistic gap (Cazden, 2000). Other problems include lack of textbooks, learning materials and teacher skills in local languages.

Using technologies to decrease rather than increase disparities.
The vast diversity of school facilities in the developing world concerns many who believe that technology and students' development of technology-related skills will be crucial factors in the 21st century knowledge-based global economy (Denny, 2000). These authors advocate the use of technology to reduce global inequalities through such vehicles as Internet-based distance learning, interactive video and educational television. In areas where electricity and telephone lines are available, such approaches to learning may contribute significantly to improve the quality of educational processes. Outside of areas with relatively developed infrastructure, there are some innovations that use technologies to support priority content and outcome goals such as basic literacy. These include the use of low earth orbiting satellites to send and receive email, the use of CD-ROMs to disseminate Internet downloads where connectivity does not exist, and the use of hand-held computers for tasks which were previously confined to desktop computers. Using Internet technologies to assign teachers where they are needed is an innovation that could be explored further in developing countries (Droste, 2000). As the president and chief executive officer of Cisco Systems stated: "There are two fundamental equalizers in life — the Internet and education. E-learning eliminates the barriers of time and distance, creating universal learning-on-demand opportunities for people, companies and countries" (Chambers, 2000). There is much to be learned about how technology can reduce rather than reinforce educational disparities, but there is certainty in the fact that technology can be only part of a learning process. As the author of a study on educational television in Cote d'Ivoire, Niger and Senegal said, "the human factor is the most important element in matters related to educational innovation" (Egly, 1986, cited in Obanya, 1995).

Diversity of processes and facilities.
The presence and heterogeneous uses of technology in schools are one manifestation of how school organizations can become more diversified to meet the needs, interests, experiences and realities of individuals and groups, i.e., how schools can become more student-centred. As schools respond to the needs of diverse and excluded groups, facilities and practices will need to be diversified to respond to specific needs of different areas and users. For example, adjustments in school hours and calendars, constructing day care close

to schools and opening reading centres at school can all make school resources more available than traditional models that assume only one kind of student will participate (Carron & Chau, 1996). As described in section six below (VI.), student-centred schools that focus on quality education have found that adapting to the rhythms and requirements of local communities results in higher participation and better student outcomes.

V. Quality Outcomes

The environment, content and processes that learners encounter in school lead to diverse results, some intended and others unintended. Quality learner outcomes are intentional, expected effects of the educational system. They include what children know and can do, as well as the attitudes and expectations they have for themselves and their societies.

Achievement in literacy and numeracy.
Academic achievement in general and achievement in literacy and numeracy in particular represent key educational outcomes. Teaching students to read, write and calculate is often considered the primary purpose of formal education, but students' regular attendance and attention in school does not guarantee this outcome. Investigations into literacy levels in recent years have shown that children in developing countries had lower levels of literacy than children in high-income countries who had received similar amounts of schooling (Willms, 2000). A large scale study in Bangladesh demonstrated, for example, that although basic skills and levels of formal education are related, the majority of those who had completed primary school failed to attain the minimum standard of competency in the four subject areas tested (Greaney, Khandker & Alam, 1999). This and other studies underscore the critical relationship between outcomes and the quality of environments, contents and processes.

Using formative assessment to improve achievement outcomes.
Assessment of academic achievement outcomes has most often been used in a summative rather than formative way. Testing information tends to be used primarily as a screening device to decide who can continue to the next grade of level rather than as a tool to help improve educational quality for individuals and systems. A project in Ghana has demonstrated that ongoing assessment of student performance can provide teachers with the information they need to improve student learning. The philosophical basis of the project was that "it is critically important to identify what skills each student possesses and to use instruction to progressively build on this foundation" (Harris, 1996). An assessment tool that centred on a curriculum-based rating scale was developed and administered to students in the pilot schools. This tool allowed teachers to determine students' level of mastery of previous and current years' curricula, which helped them determine the extent to which alternative instructional strategies and remedial content were necessary for both individuals and groups. This approach resulted in significantly improved outcomes. The proportion of children who fully mastered reading at grade level, for example, rose from 4 per cent to 21 per cent over just 18 months following the project's inception (Harris, 1996).

Outcomes sought by parents.

Parents tend to see academic achievement as closely related to the opportunity for social promotion and employment. These anticipated outcomes tend to be highly valued by families: future employment possibilities that result from education seem to be a primary factor in the demand for primary education (Bergmann, 1996). When parents in China , Guinea, India and Mexico were interviewed, they rarely cited school-related factors as reasons for drop-out or non-enrolment, but other evidence suggested that a lack of faith in school as an instrument for social promotion may have led to decisions to keep children out of school (Carron & Chau, 1996). Parents tend to attach more importance to educational outcomes as a measure of school quality than students, teachers or principals (Gaziel, 1996). Just as parents seek favorable outcomes, such as academic achievement and eventual employment, they seek to avoid outcomes they view as negative. Parents who view education unfavorably cite the following potential outcomes: children do not respect their parents, school leavers consider themselves superior to their fellow villagers, school leavers become delinquents, girls object to the traditional rules governing marriage, and school girls do not master the required domestic duties (Bergmann, 1996).

Outcomes related to community participation, learner confidence and life-long learning.

Academic achievement is often used as an indicator of school quality because it is easily measurable using standardized tests, while other outcomes may be more complex and less tangible. These include education for citizenship (participating in and contributing to the community, learner confidence and self-esteem) and skills for behavioural development and change. Such outcomes are possible to evaluate, however. One approach distinguishes four levels of citizenship education outcomes: first, students' knowledge of areas such as human rights, the rights of the child and governmental institutions; second, students' ability to analyse social situations related to citizenship values; third, the degree to which students are able to work cooperatively and demonstrate curiosity and autonomy (an outcome related to teachers' use of participative pedagogy); and fourth, the degree to which students demonstrate responsibility to each other and to the community (an outcome related to student and teacher participation in school management and decision-making) (DeKetele, 2000).

Experiential approaches to achieving desired outcomes.

The content and processes that lead to the more affective outcomes of community participation and responsibility often happen in the classroom, but some programmes have discovered experiential community-based approaches that lead to these results. The Social Forestry, Education and Participation (SFEP) project in Thailand provides an example. In several Thai villages, the project brought fifth and sixth grade students out of the classroom and into the community to learn about forest management. Students surveyed villagers to identify specific forest management problems and community members gradually became more involved as informal teachers. Together, they developed community projects, such as the care of seedlings and the establishment of a forest nature centre, that helped students increase their knowledge of forest ecosystems and the social

systems that surround them. An evaluation of the project found that communities supported this new form of teaching and learning and that school-community relations improved. The children were more connected to their local histories, social relations and economic structures. The students and the school came to be seen as a force for positive change in the community (McDonough & Wheeler, 1998). The SFEP and other such programmes demonstrate that schools can help build social capital and create interconnecting links that promote quality affective and behavioural outcomes for children (Bronfenbrenner, 1986).

Health outcomes.
Educational quality also implies positive outcomes for participants' health. Students should receive services to improve their health, such as treatment for illness and infection and school feeding programmes to improve nutrition, as well as curricular content that increases their knowledge and affects their behaviour related to health and hygiene. General literacy and socialization provided by schools have been shown in particular to affect women's maternal behaviour and reproductive health (LeVine, 2000).

Lifeskills and outcomes.
Psychosocial and interpersonal skills can be applied to many contexts — HIV/AIDS prevention, drug abuse prevention, nutrition and hygiene behaviour and many non-health contexts as well. However, these skills are better assessed within a particular context. While it might be possible, albeit difficult, to generically assess the use of life skills such as decision-making or assertion skills without considering a specific context, the value of so doing is limited. It is more useful and easy to interpret evaluation about the specific contexts where decision-making skills or assertive behaviours are applied, for example, since individuals will react differently in different contexts. Someone who is assertive about not smoking or not drinking too much alcohol may not use a condom with a sex partner; or someone may demonstrate conflict- management skills among his male friends over whether or not to use drugs, but he may not demonstrate these skills when a conflict arises with his girlfriend over whether or not to have sex. It is important to evaluate the specific contexts and the life skills that are the focus of the programme (Botvin &Willis, 1985).

Schools that strive for quality outcomes by bringing together the many elements of quality educational programmes exist around the world. Although there are many, the next section describes two valuable examples.

VI. Bringing it together:
Examples of quality programmes

Two different programmes in Latin America offer examples of educators taking new approaches to school quality improvement for undeserved children. The first is found in Chile, the second in Guatemala.

Chile's programme for quality improvement in primary schools (SIDA, 2000)

In 1990, the Ministry of Education in Chile undertook a programme to improve the quality of primary schools in disadvantaged areas of the country. Approximately 10 per cent of the country's existing primary schools(about 1,200) took part in the programme at a cost of just under $17 million in U.S. dollars. This included about 7,000 teachers, 400 supervisors, and 200,000 students.

The programme had at least four significant components. First, it provided for the improvement of learning environments, including improvement of infrastructure and provision of classroom libraries and learning materials.

Second, it addressed the critical process element of teacher and supervisor training through weekly workshops in school with teachers from grades one through four. This training centred on improving teaching methods for basic skills and working more effectively with the local culture and community. During training, teachers worked in groups to discuss teaching practices and challenges, i.e., they engaged in cooperative learning that drew on authentic and relevant experiences and needs. In this way, the training programme modelled quality instructional practices and facilitated change in teachers' knowledge, skills and attitudes.

Third, the programme offered focused assistance for lower-achieving students. This special attention was provided through workshops delivered by young community members who had been trained as part of the project. This format succeeded in strengthening learning and improving self-esteem and social competence.

Finally, new textbooks were developed and provided to schools, along with manuals for teachers and supervisors. Teachers received training on the new materials as part of their weekly workshops.

Programme evaluations found significantly improved achievement among participating schools as compared to their prior performance and the performance of schools outside of the programme. These results indicate that focusing on key quality dimensions within a learning system can have an important effect on the students' skills and, as a result, their life chances.

Nueva Escuela Unitaria de Guatemala (Kraft, 1998)

Based on the Escuela Nueva model in Colombia, the Guatemalan Nueva Escuela Unitaria (NEU) project began its first pilot projects in 1989. By 1998, NEU had spread to more than 1,300 educational institutions, both governmental and private. The programme focuses on creating positive, participatory environments along with flexible, student-centred, empowering processes.

The physical environment in NEU schools supports participatory learning in many ways. Most importantly, classrooms are structured so that students can easily work cooperatively in small groups dispersed around the room, or even the hallway, porch or schoolyard. The teacher can use available spaces to structure diverse learning experiences rather than standing in front of a blackboard facing rows of desks.

NEU processes are based first on active community involvement. Teachers receive training in community development and learn to guide children through learning projects that involve their parents, relatives and other people in their lives. Parents contribute in many ways to the effective functioning of schools, from serving on nutrition committees that prepare and distribute snacks to maintaining facilities and building playgrounds. Parents and other community members are included as schools are established, and this active, voluntary participation translates into support for learning.

Teachers are deeply involved in all aspects of NEU schools. NEU uses a system of 'Teachers' Circles' for local leadership, teacher training and curriculum development. Developed along the lines of quality circles in industry, teachers meet regularly each month to share experiences and classroom techniques, solve problems and provide mutual support and in-service training. Through the circles, teachers create teaching and learning materials or adapt materials to local circumstances. Teachers from several neighbouring schools create one circle, which encourages teachers to visit to each other's sites. Improvement has been demonstrated in teachers' attitudes and behaviours towards such things as small-group instruction, cooperative learning, flexible promotion, local content and self-managed learning.

Student leadership is also a key part of the learning process in NEU schools. Students elect a committee whose officers become responsible for attendance, meetings, the library, learning corners, recess, the garden and many other elements of school life. Children also help set school rules and policies relating to discipline. By delegating responsibility to students for the daily management of schools, children build understanding of democracy, self-discipline, self-direction and self-confidence.

The development and use of learning materials further demonstrates NEU's commitment to active participation. Practicing teachers write most textbooks, workbooks and teachers' guides, resulting in materials that are grounded in the classroom realities faced by rural teachers. Rather than memorization and repetitive practice, the philosophy behind these curricular materials is 'learn, practice, apply'. At NEU schools, individualized learning through student workbooks allow learners to take time out if they are sick or need to work at home or in the fields, then return without having to repeat an entire grade. The workbooks provide for continuous evaluation and teachers often assign additional or remedial work if necessary for subject mastery. Students move at their own pace, advancing to the next levels of instruction when they are ready.

Together, these factors result in quality outcomes. Evaluations have shown that NEU schools have increased student retention, improved attendance by girls and significantly

increased reading achievement when compared to traditional schools. They have also contributed significantly to the social and emotional growth of students in terms of participatory behaviour, working in groups, helping other pupils and expressing opinions in the classroom.

Bringing together the many dimensions that contribute to educational quality — learners, environment, content, process, and outcomes — is a difficult task. It requires knowledge, resources, commitment and willingness to change. Chile's programme for quality improvement in primary schools and the Nueva Escuela Unitaria of Guatemala represent just two of the many efforts seeking to improve the quality of education in the developing world. These efforts must continue and expand if children's right to quality education is to be ensured and fulfilled.

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LEARNERS AND TEACHERS AS LEARNERS

Health and Psychosocial Development
• Good health and nutrition status
• Learner confidence and self-esteem
• Regular attendance for learning
• Early assessment of disabilities
Home
• Home/school/community partnerships
• Family support for learning
• Positive early childhood experiences

ENVIRONMENTS

Physical Elements
• Access to quality school facilities including water and sanitation
• Class size
Psychosocial Elements
• Peaceful, safe environments – especially for girls
• Effective school discipline, health and nutrition policies
• Inclusive environments
Service Delivery
• Provision of health services

QUALITY OUTCOMES

• Learning what they need to learn, for learning throughout life
• Healthy, well-nourished, and free from exploitation, violence and labour
• Aware of their rights and have opportunities to realise them
• Able to participate in decisions that affect their lives in accordance with their evolving capacities
• Able to respect diversity, practice equality, and resolve differences without violence

CONTENT

Materials
• Comprehensible, gender-sensitive, relevant to schooling
Curriculum
• Based on defined learning outcomes
• Non-discriminatory and student centred
• Unique local and national content
• Includes Literacy, Numeracy, Lifeskills,
• Includes relevant knowledge on gender equity, HIV/AIDS, health, nutrition and peace
Standards
• Standards and targets for student learning

PROCESSES

Students
• Intervention and special assistance where needed
• Time on task
• Access to language used at school
• Relevant, student-centred methods leading to active participation

Teachers
• Competence and school efficiency
• Ongoing professional learning for teachers
• Positive and gender-sensitive teacher/student relationships
• Belief that all students can learn and commitment to student learning
• Feedback mechanisms that target learning needs
• Frequent monitoring and assessment by teachers that leads to further learning
• Positive living/working conditions

Supervision and Support
• Adjustment in school hours and calendars to support student learning
• Administrative support and leadership
• Using technology to decrease rather than increase disparities
• Governments that are supportive of education systems
• Financial resources for education systems, esp. for recurrent budgets

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Quality Learners

Source	Country	Sample *size, age or level*	Design and methods	Quality dimension	Findings
				Pre-school health programmes	
1) Willms, D. (2000) 2) Fuller et al. (1999)	1) 12 countries in Latin America 2) Brazil	1) 50,000 students in grades 3 and 4 2) 1,925 students and 140 teachers in 94 primary schools	1) Cross-sectional Single admin of tests (students) and questionnaires (students, parents and teachers) 2) Classroom observations, Interviews, Early Literacy Exam	Pre-school cognitive development	1) Attendance at day care, parents reading to young children and higher levels of parental involvement are associated with higher test scores and lower rates of grade repetition. 2) Maternal education influences the average child's literacy score, and the effect is stronger for girls than boys. The number of books found in the home has a positive relationship with literacy scores. Children who live in more crowded households do less well on the exam.
Lockheed & Verspoor (1991) cited in Pennycuick (1993)				School nutrition / meals	Three aspects of nutritional status clearly affect achievement adversely: protien-energy malnutrition, temporary hunger and micronutrient deprivation.
Lockheed & Verspoor (1991) cited in Pennycuick (1993) 2) Williams & Leherr (1998)	2) Ghana	2) Students in 5 districts – 2 control and 3 treatment	2) Teachers' assessment scores for each subject gathered and analysed	School health – vaccinations, worms	1) Maximum benefit-cost ratios are achieved when deworming is combined with sanitation, a clean water supply and health education. 2) School-based deworming programmes led to positive health, nutritional and academic achievement outcomes. Assessment scores in the achievement group increased significantly, and failing scores fell from 32% to 23% in three years.
Carron, G. & Chau, T.N. (1996)	Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	Students, teachers and parents from 252 schools in 4 countries	Achievement tests, questionnaires, interviews with teachers, parents, and local officials	Children's health	Illness and poor health are one of the main reasons for absenteeism.
				Sleep – well rested	

1) Miske, S., Dowd, J., et al. (1998) 2) Greaney, V., Khandker, S., and Alma, M. (1999)	1) Malawi 2) Bangladesh	1) 238 students in three types of schools 2) 5,235 men and women age 11years and older	1) Pre-post gains scores; qualitative classroom observation 2) Single admin test of basic skills	Attendance	1) Schools with higher rates of attendance had greater learning gains and lower rates of repetition. 2) Although basic skills and levels of formal education were related, attendance did not guarantee minimum competency; the majority of those who had completed primary school failed to attain the minimum standard in all four subject areas.
1) Hartwell, A. (1997), cited in Muskin, J.A. (1999) 2) Easton, P., et al. (1997), cited in Muskin, J.A. (1999)				Parental support	1) Parents may be uncomfortable with mixed sex, male-led classrooms. 2) Parents may prefer religious or mixed education over purely secular, as seen by the growing popularity of Koranic schools.
Willms, D. (2000)	12 countries in Latin America	50,000 students in grades 3 and 4	Single administration of tests (students) and questionnaires (students, parents and teachers)	Parental education	Children whose parents had primary school education or less were more than three times as likely to have low test scores or grade repetition than children whose parents had at least some secondary schooling.
Fuller (1987)	Multiple developing countries		Review of existing literature	Inclusion of under-represented learners	School and teacher quality has a greater impact in low SES countries and populations than in higherincome areas.

Quality learning environments

Source	Country	Sample *size, age or level*	Design and methods	Quality Dimension	Findings
1) Harbison, R., and Hanushek, E. (1992), cited in Fuller, B., Dellagnelo, L., et al. (1999) 2) Reynolds (1991), cited in Pennycuick (1998) 3) Carron, G. & Chau, T.N. (1996)	3) Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	3) Students, teachers, and parents from 252 schools in 4 countries	3) Achievement tests, questionnaires, interviews with teachers, parents and local officials	Adequate infrastructure	1) "Extant empirical evidence is inconclusive as to whether the condition of school buildings is related to higher student achievement […]. However, the condition of facilities is often a salient indicator of school quality in the eyes of parents and policy makers." 2) The school size, physical characteristics and age of buildings do not seem to be associated with achievement. Effective schools do, however, provide good working conditions for pupils and teachers, and buildings that are well cared for and decorated. 3) Focusing on India, quality of infrastructure (presence of school building, water supply, electricity, library, etc.) was strongly correlated with pupils' achievement in Hindi and mathematics.
1) Miske, S., Dowd, J., et al. (1998) 2) Bergman (1996) 3) Verwimp (1999)	1) Malawi 2) Burkina Faso, Mali, Tanzania 3) Ethiopia	1) 238 students in three types of schools 2) Teachers, parents and students 3) 35 teachers	1) Pre-post test gains scores; qualitative classroom observation 2) Meta-analysis of 3 studies 3) Interviews and data from household survey	Safety	1) In some schools studied (government schools), male teachers exhibited sexual harassment of girls. 2) Lack of discipline, violence of teachers towards pupils (corporal punishment) and the risk of pregnancy due to the behaviour of unmarried male teachers caused parents to consider withdrawing their children from school. 3) Nearly 50% of teachers interviewed said they use corporal punishment when a pupil has done something wrong at least once a week, with 11% saying they use it every day. 37% said they never use corporal punishment.

2) Willms, D. (2000)	12 countries in Latin America	50,000 students in grades 3 and 4	Cross-section Single administration of tests (students) and questionnaires (students, parents and teachers)	Supplies and learning materials	Children whose schools lack classroom materials and had an inadequate library were significantly more likely to show lower test scores and higher grade repetition.
1) Sutton, M., et al. (1999) 2) Mitchell, David R. (1995)	1) Guinea 2) Japan, New Zealand, So. Korea, China, Malaysia, Thailand, Indonesia, Viet Nam	1) Parents, teachers, administrators in 4 primary schools	1) Document review, extant statistical data, interviews, observations 2) Document analysis	Non-discriminatory	1) Between 1989 and 1997, Guinea increased the percentage of girls enrolment from 17% to 37%. Done through: Equity Committee, community research, policy reforms(pregnancy and girls' latrines), more women in teaching and admin, and a sensitization campaign to raise community awareness about the value of girls' education. 2) Although most educational policies include a philosophy of inclusion, significant gaps between policies and actual practices in schools and classrooms exist
Carron, G. & Chau, T.N. (1996)	Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	Students, teachers, and parents from 252 schools in 4 countries	Achievement tests, questionnaires, interviews with teachers, parents, and local officials	Diversity of facilities	As schools are organized to respond to the needs of excluded groups, facilities and practices will need to be diversified to respond to specific needs of different areas and users. For example, adjustments in school hours and calendars, constructing day care close to schools, opening reading centres at school, etc.
1) Reynolds (1991), cited in Pennycuick (1993) 2) Willms, D. (2000) 3) Postlethwaite, N. (1998)	2) 12 countries in Latin America 3) 14 least developed countries	2) 50,000 students in grades 3 and 4 3) At least 20 primary schools in each country	2) Tests (students) and questionnaires (students, parents and teachers) 3) Survey managed by UNICEF field offices	Class size	1) Class size has not consistently been found to be related to student achievement. It may have an impact of teachers' perceptions of working conditions. 2) Children who were in classes of more than 25 students were 1.5 times more likely to demonstrate lower test scores and higher grade repetition increased. 3) Class sizes ranged from fewer than 30 students in rural and urban Bhutan, Madagascar, and the Maldives, to 73 in rural Nepal and 118 in Equatorial Guinea.

Quality Content

Source	Country	Sample *size, age or level*	Design and methods	Quality dimension	Findings
				Curriculum linked to outcomes	
				Outcomes linked to national goals	
				Teachers understand and can communicate curriculum	
Marzano (2000)				Focus on processes, how to learn	"Although the 20th century began with a fairly myopic view of teaching as the presentation of knowledge, it concluded with a panoramic perspective on instruction that addressed such diverse aspects of learning as the importance of affect, the role of attitudes and beliefs, the importance of metacognition and prior knowledge, and information analyses." - Quoted from summary
				Include skills, attitudes, and values	
Miske, S., Dowd, J., et al. (1998)	Malawi	238 students in three types of schools	Pretest andpost-test gains scores; qualitative classroom observation	Instruction allows for practice with new concepts	In schools with greater learning gains, teachers gave pupils more opportunities to practice new material using more teaching aids, and teachers checked pupil learning more often.
				Grade-level appropriate	
				Properly sequenced	

1) Muskin, J.A. (1999) 2) Carron, G. & Chau, T.N. (1996) 3) Bergman (1996)	2) Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang) 3) Burkina Faso, Mali, Tanzania	2) Students, teachers and parents from 252 schools in 4 countries 3) Teachers, parents, and students	2) Achievement tests, questionnaires, interviews with teachers, parents and local officials 3) 3 different studies analysed	Relevant to students' lives	1) "Incorporation of local knowledge does not simply involve adding relevant lessons and direct community contact. Rather, important pedagogical issues are involved."For example: ability to use grade-appropriate strategies. 2) Curriculum must take parents' aspirations for their children into account. Most want their children to continue studying as long as possible, and many wish them to have professional careers outside of villages. 3) Heavy work on the school farm without any remuneration, to the detriment of 'academic' subjects was cited as an important reason for school withdrawal.
Fuller, B., Dellagnelo, L., et al. (1999).				Literacy (reading and writing)	
				Numeracy	
				Life skills	
World Health Organization (1998)	Norway	600-700 students		Peace education	Anti-violence programme reduced antisocial behaviour and bullying by 50% or more over two years. Effects more significant after 2 years than 1 (Norwegian Ministry of Education)
				New technologies	
				Gender sensitive, non-discriminatory	
Glatthorn & Jailall (2000)				Responsive to emerging issues	Looking at curricular priorities in the United States, the authors point to changes that responded to national or local priorities.
Bergman (1996)	Burkina Faso, Mali, Tanzania	Teachers, parents and students	3 different studies analysed	Language policy	Parents in Mali strongly preferred French as a language of instruction in primary education. This finding echoes studies undertaken in Ecuador, Pakistan and Peru , where parents mastery of English or Spanish as improving the life chances for their children.
Miske, S., Dowd, J., et al. (1998)	Malawi	238 students in three types of schools	Pretest and post-test gains scores; qualitative classroom observation	Child-centred	Students in village-based schools, which included child-centred teaching among several key innovations, learned more than counterparts in grant-aided schools or government schools.

				Teachers involved in writing and evaluating curriculum	

Quality Processes

Source	Country	Sample size, age or level	Design and methods	Quality dimension	Findings
Carron, G. & Chau, T.N. (1996)	Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	Students, teachers, and parents from 252 schools in 4 countries	Achievement tests, questionnaires, interviews with teachers, parents, and local officials	Teachers' presence in classroom	43% of interviewed teachers reported being absent at some point in the previous month.
Carron, G. & Chau, T.N. (1996) 2) Postlewaithe (1998) 3) Mullens, Murnance, & Willett (1996)	1) Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang) 2) 14 least developed countries 3) Belize	1) Students, teachers, and parents from 252 schools in 4 countries 2) At least 20 primary schools in each country 3) 1,043 third-grade students in 72 classrooms	1) Achievement tests, questionnaires, interviews with teachers, parents and local officials 2) Survey managed by UNICEF field offices 3) Pre-post achievement tests	Teachers trained in both content and teaching methods	1) Observations in four countries show that certain teachers have an insufficient mastery of the subject matter they teach, and lack the pedagogical know-how required for good presentation of the material. Many teachers identified this as a problem for themselves. 2) Teaching qualifications range significantly. In Cape Verde, Togo and Uganda, 35% to 50% of students had teachers who had no teacher training. In Benin, Bhutan, Equatorial Guinea, Madagascar and Nepal, over 90% of students had teachers with some form of teacher training. In these latter countries, most teachers have at least lower secondary education. In Cape Verde and Tanzania, over 60% of students have teachers with only a primary education. 3) Student achievement, especially in more complex areas of mathematics, was highly correlated with teachers' command of subject matter.
Carron, G. & Chau, T.N. (1996)	Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	Students, teachers, and parents from 252 schools in 4 countries	Achievement tests, questionnaires, interviews with teachers, parents and local officials	Teachers skilled in assessment as part of learning process	In India and Guinea, teachers are very poorly trained in evaluation techniques, and the reality is far from the continuous evaluation procedures recommended by official programmes.

1) Craig, H., Kraft, R., & du Plessis, J. (1998) 2) Anderson, S. (2000) 3) Maheshwari & Raina (1998)	1) Bangladesh, Botswana, Guatemala, Namibia and Pakistan 2) Kenya — Mombasa School Improvement Project 3) India	1) 5 primary schools 2) 24 teachers in four project and two non-project schools 3) 286 teachers	1) Case studies 2) Observation of teacher and student behaviour 3) Achievement test and attitude survey	Professional development	1) Case studies from provide evidence that ongoing professional development, in the early years after initial preparation and continuing throughout a career, contribute significantly to student learning and retention. 2) Teachers supported with in-service as well as external workshop training were more effective in using child-centred teaching and learning behaviours. 3) Training using interactive video technology led to improved conceptual understanding of pedagogical issues for a large number of geographically dispersed teachers.
1) Miske, S., Dowd, J., et al. (1998) 2) Carron, G. & Chau, T.N. (1996)	1) Malawi 2) Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	1) 238 students in three types of schools; 12 primary schools 2) Students, teachers and parents from 252 schools in 4 countries	1) Pre-test and post-test gains scores; qualitative classroom observation 2) Achievement tests, questionnaires, interviews with teachers, parents and local officials	Administrators support teachers	1) In schools with greater learning gains, supervisors regularly evaluated teachers, contributing to improved teaching practice. 2) Connections between pupil learning gains, teaching and learning in the classroom, and organizational support for teaching and learning are interrelated and inseparable. 3) Many head teachers were expected to complete extensive administrative and pedagogical duties. Supervision of staff suffered for want of time. [Check numbering here: Is it **1, 2, 3** / sgg]
1) Carron, G. & Chau, T.N. (1996) 2) Perera (1997)	1) Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang) 2) Sri Lanka	1) Students, teachers and parents from 252 schools in 4 countries 2) Disadvantaged schools	1) Achievement tests, questionnaires, interviews with teachers, parents and local officials 2) Observations, document review, participant questionnaires	Administrators are qualified	1) Promotions are rarely made on the basis of leadership or management skills. Few heads of schools have received specific training in administration, management or pedagogical supervision. Many maintain a heavy teaching load. 2) Changes in school climate and level of professionalism occurred through training that included on-site school workshops examining personal, interpersonal and school development, and follow-up workbooks and visits.

1) Willms, D. (2000) 2) Postlewaithe (1998)	1) 12 countries in Latin America 2) 14 least developed countries	1) 50,000 students in grades 3 and 4 2) At least 20 primary schools in each country	1) Cross-sectional Single administration of tests (students) and questionnaires (students, parents and teachers) 2) Survey managed by UNICEF field offices	Teachers receive adequate salary	1) Children in schools where many teachers work in other jobs in addition to teaching are 1.2 times more likely to have lower test scores and/or higher grade repetition. 2) In most of the countries surveyed, most teachers were paid on time or one week late. The teachers who were paid a month late in Bangladesh, Nepal and Uganda, however, accounted for 27%, 35% and 60%, respectively, of the population of school children.
Carron, G. & Chau, T.N. (1996)	Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	Students, teachers and parents from 252 schools in 4 countries	Achievement tests, questionnaires, interviews with teachers, parents and local officials	Good working conditions	In all four countries, large proportions of teachers felt dissatisfied with their work, leading to low motivation. One factor in this is that the environment is seldom seen to be encouraging. The lack of teaching materials was a particularly important factor in dissatisfaction.
1) Carron, G. & Chau, T.N. (1996) 2) Verwimp, P. (1999)	1) Mexico, India, Guinea, China 2) Ethiopia	1) Students, teachers, parents from 252 schools in 4 countries 2) 35 teachers and 7 school directors	1) Achievement tests, questionnaires, interviews with teachers, parents and local officials 2) Interviews and data from household survey	Teaching is student centred	1) In the four countries, teaching style is typically traditional, teacher-centred, and fairly rigid or even authoritarian. 2) The majority of teachers say they link things learned in class to the daily life of pupils at least once a week, with 37% saying they do this every day. Almost two thirds, however, say they never or rarely ask pupils what their interests are, or what they would like to learn.
1) Fuller, B., Dellagnelo, L., et al. (1999); Anderson, L. (1991); Stevenson, H. and Stigler, J. (1992). 2) Verwimp, P. (1999)	2) Ethiopia	2) 35 teachers and 7 school directors	2) Interviews and data from household survey	Efficient use of time	1) "Classroom time must be used effectively through instructional activities that engage children with few non-instructional diversions." 2) The quality of school and the quality of teaching of the individual teacher is higher in schools that are able (and willing) to make more efficient use of the available time of its teachers and its pupils.
Carron, G. & Chau, T.N. (1996)	Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang)	Students, teachers and parents from 252 schools in 4 countries	Achievement tests, questionnaires, interviews with teachers, parents and local officials	Student achievement is first priority	Teachers in Guinea and Mexico have little awareness of school's role in pupil failure and drop-out. They tend to blame the pupils and their family environment.

				Schools use information for self assessment – learning orientation	
1) Anderson, S. (2000) 2) Willms, D. (2000)	1) Kenya — Mombasa School Improvement Project 2) 12 countries in Latin America	1) 50 primary schools (1998) 2) 50,000 students in grades 3 and 4	1) Not clear 2) Cross-sectional Single administration of tests (students) and questionnaires (students, parents and teachers)	Parent and community participation	1) A community development officer undertook to create parent awareness on need to take charge of raising and managing funds for schools. Colleagues perceived these efforts as effective in encouraging stakeholder participation. 2) Children with low parental involvement in school were 1.5 times more likely to have lower test scores and higher grade repetition.
Gaziel, H. (1998)	Israel	406 teachers in 19 autonomous and 22 non-autonomous primary schools	One time survey of teacher attitudes on four dimensions	Site-based management	Teachers in autonomous schools have a higher sense of efficacy, sense of community, commitment to school and achievement orientation. These factors are related to school effectiveness, but explained only a small per cent of the variance in this study.
Kanyike, L., Namanya, P., & Clair, N. (1999)	Uganda	Students in one primary school	Participatory action research	Student empowerment, democratic processes	Researchers collaborated with teachers to develop action research opportunity for students. Students selected the issue of student tardiness, collected and analysed data, and developed a data-based solution.

Quality Outcomes

Source	Country	Sample *size, age or level*	Design and methods	Quality dimension	Findings
				Outcomes linked to national goals for education	
				Standards in place	
				Include skills, attitudes, values	
				Appropriate assessment tools	
				Teachers skilled in assessment of outcomes	
Shaeffer (2000)				Skills for participatory democracy	Position paper – schools for democracy, participation, social inclusion.
1) Carron, G. & Chau, T.N. (1996) 2) Bergmann (1996)	1) Mexico (Puebla), India (Madhya Pradesh), Guinea, China (Zhejiang) 2) Burkina Faso, Mali, Tanzania	1) Students, teachers and parents from 252 schools in 4 countries 2) Teacher, parents and students	1) Achievement tests, questionnaires, interviews with teachers, parents, and local officials 2) 3 different studies analysed	Skills for employment and social promotion	1) Although school-related factors are seldom cited as reasons for drop-out or non-enrolment, a lack of faith in school as an instrument for social promotion could lead to decisions to keep children out of school. 2) Future employment possibilities that result from education seem to be a primary factor in the demand for primary education.

1) Bergmann (1996) 2) Gaziel, H. (1996)	1) Burkina Faso, Mali, Tanzania 2) Israel	1) Teacher, parents and students 2) 16 parents, 16 students, 24 teachers, 8 principals	1) 3 different studies analysed 2) In-depth interviews	Knowledge outcomes and academic achievement	1) When basic literacy and numeracy were not perceived to be guaranteed in the primary school, and when there was little prospect of passing the final examinations, parents were more likely to consider withdrawing their children. 2) Although all four groups think academic achievement is an important indicator of school effectiveness, parents attach much more importance to school outputs than do the other groups. Students also emphasise the importance of teaching skills; teachers prize client satisfaction, teaching skills and values diffusion; and principals point to resources mobilisation more frequently than other groups