




Learning and Educational Quality

Ash Hartwell
Joseph DeStefano
Jane Schubert

August, 1998



Prepared for:

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

Project undertaken by:

AMERICAN INSTITUTES FOR RESEARCH, CENTER FOR INTERNATIONAL RESEARCH
IN COLLABORATION WITH
JUÁREZ AND ASSOCIATES, INC.
ACADEMY FOR EDUCATIONAL DEVELOPMENT
EDUCATION DEVELOPMENT CENTER, INC. AND
UNIVERSITY OF PITTSBURGH

Contract No: HNE-I-00-7-00029-00

A

ABSTRACT

This paper frames the concept of educational quality in terms of learning. It combines the experiences of host country colleagues and US education researchers with the latest thinking on learning, to examine issues related to educational quality and the process of change. During the five years of the Improving Educational Quality (IEQ I) Project, education researchers worked collaboratively to examine issues related to quality in Ghana, Mali, Guatemala, Uganda and South Africa. The principles which emerged from IEQ I formed the foundation for the current IEQ II Project in an expanded set of countries. This paper explains those principles and explores issues related to learning and educational quality: Who learns? What is learned? How is it learned? The paper is intended to stimulate thinking and dialogue about what constitutes educational quality in particular contexts and how change can be facilitated. We propose a means to engage a variety of stakeholders in a learning process that is grounded in information, that engages groups of people in individual and joint reflection, and that leads to specific action to improve quality.

LEARNING AND EDUCATIONAL QUALITY

- I. INTRODUCTION
- II. THE IMPROVING EDUCATIONAL QUALITY PROJECT
- III. IMPROVING EDUCATIONAL QUALITY: THE GHANA EXPERIENCE
- IV. QUALITY HAS TO DO WITH LEARNING
- V. THREE LENSES OF EDUCATIONAL QUALITY
 - A. WHO LEARNS?
 - B. WHAT IS LEARNED?
 - C. HOW IS IT LEARNED?
- VI. IMPLEMENTING A LEARNING-BASED APPROACH TO QUALITY
- VII. CONCLUSION

I. INTRODUCTION

In a dark, bare, cement block room, students sit on long, backless wooden benches. Those who have notebooks struggle to balance them on their knees. The teacher, with his back to the class, scratches out a long-division problem, 390 divided by 15, on the rough blackboard. As the teacher conducts the lesson, the children chant the equivalent of, “15 into 39 goes 2 times. I write the 2 above. Two times 15 is 30; I write the 30 below, and subtract.” They continue in this manner in a steady, monotone cadence, reciting their way through the problem. When the teacher completes the division, they copy the example in their notebooks. Perhaps three quarters of the children fail even to copy correctly what is on the blackboard. The teacher moves to the next example and the chant begins again.

Rote recitation, teacher-centered pedagogy, lack of individual or student-to-student activity and an atmosphere at best described as torpid--the confluence of several factors makes this the too typical description of the “quality” of teaching, classrooms and schools in developing countries.

Most teachers themselves have limited education and training. School directors are not first and foremost educators. Parents are uninformed about what constitutes good education, and therefore, they fail to make demands. Materials are lacking. Outside support essentially does not exist. Schools struggle in isolation, remain mired in unimaginative teaching techniques, and lack even the most essential of accommodations.

This is the reality we must confront when we take on the issue of educational quality. How do we help education systems and their stakeholders transform this reality? And how do we help them take action in response to its stark truth: classrooms and schools that fit the above description do not promote learning, and therefore access to them does not constitute education?

This paper attempts to answer these questions by framing the issue of educational quality in terms of learning. We define quality as being determined by who learns, what is learned, and how it is learned; and we propose a means to engage a variety of stakeholders in a learning process that is grounded in information, that engages groups of people in individual and joint reflection, and that leads to specific actions to improve quality.

II. THE IMPROVING EDUCATIONAL QUALITY PROJECT

In this paper we draw on the experience of the Improving Educational Quality (IEQ) Project (and others) to relate a framework for addressing quality in developing countries. A five-year, five-country project, the Improving Educational Quality Project (IEQ) was initially funded by the United States Agency for International Development in 1991. This project, continuing now as IEQ II, followed almost a decade of attention to issues linked to access and efficiency. IEQ I was a vehicle for shifting the Agency’s focus to the quality of learning. Specifically, the IEQ project promotes an approach to educational quality that:

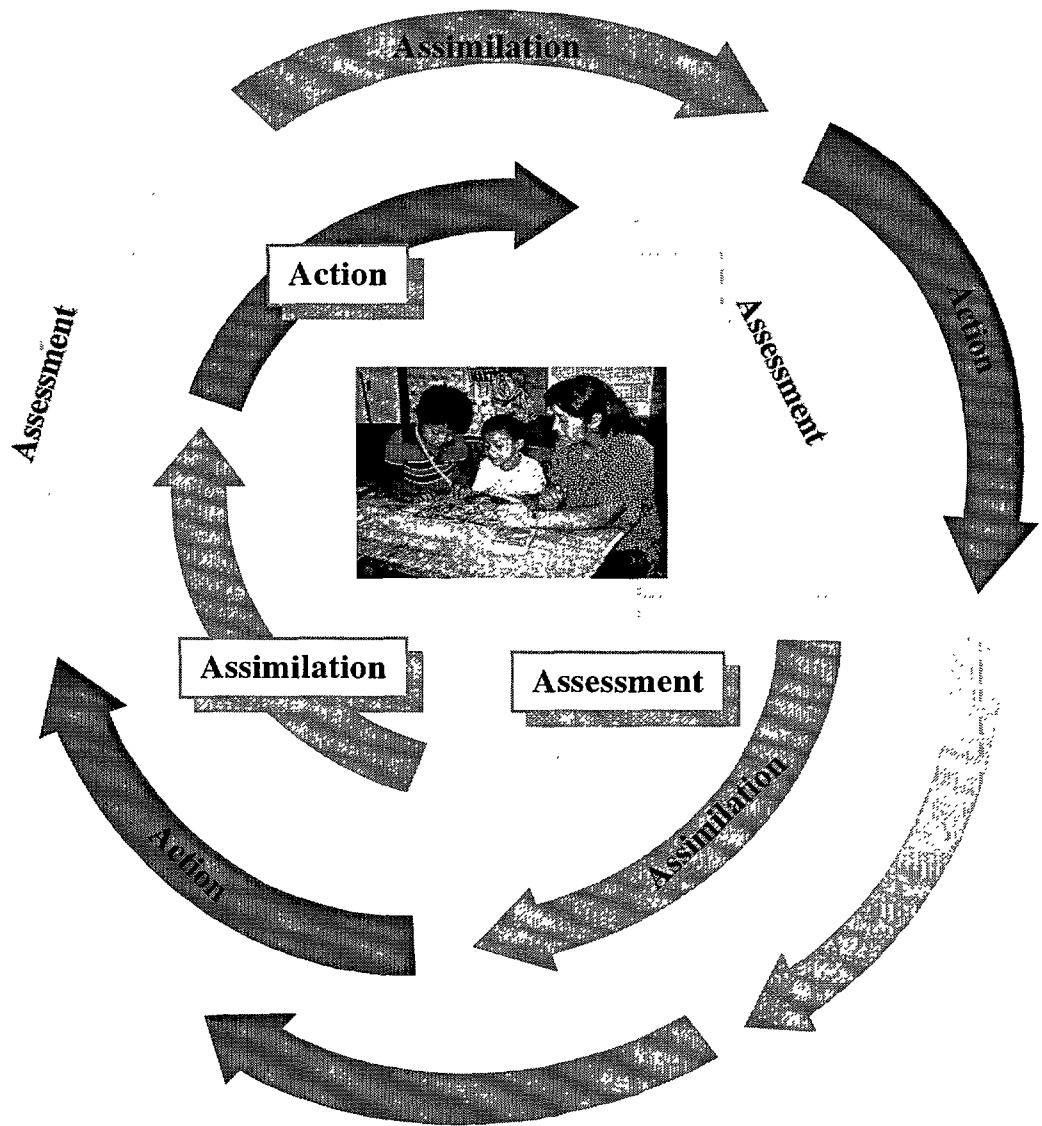
- relies on real information about what children are (or are not) learning;
- documents and helps evaluate actual teaching and classroom management techniques;
- engages school and community level actors in reflection on how the school (and home) environment and the day to day practice of teaching impact children's learning;
- uses the above information and reflection to inform sectoral policy.

Throughout IEQ I, each of the five participating countries (Ghana, Guatemala, Mali, South Africa and Uganda) engaged in a context-based, inclusive process to talk about and act to improve learning. This process took place country by country in order to focus on the specific national educational priorities and to involve people throughout the educational system, such as those responsible for setting policy, developing tests, training teachers, writing textbooks, teaching pupils, and supervising teachers.

The process, continuing in IEQ II, has three key components. The process begins with *assessment*. Observations, achievement measures and interviews provide rich data on individual and group experiences in schools and classrooms. The community and education system are then helped to *assimilate* the findings from the assessment phase through meetings, dialogue, seminars and conferences. At these events assessment data are presented to generate a discussion of their implications for the quality of the educational system – e.g., for teacher training, policy development and textbook preparation and distribution. The third phase is the *action* that is taken after having assimilated such information. Such action focuses on improving learning throughout the system (e.g., a policy shift that does not hold teachers accountable for damaged texts, a community learning center to help pupils with school work, using folk tales to improve oral communication). This three-phased cycle is shown in the following graphic:

IMPROVING EDUCATIONAL QUALITY PROJECT

IEQ Interactive Process



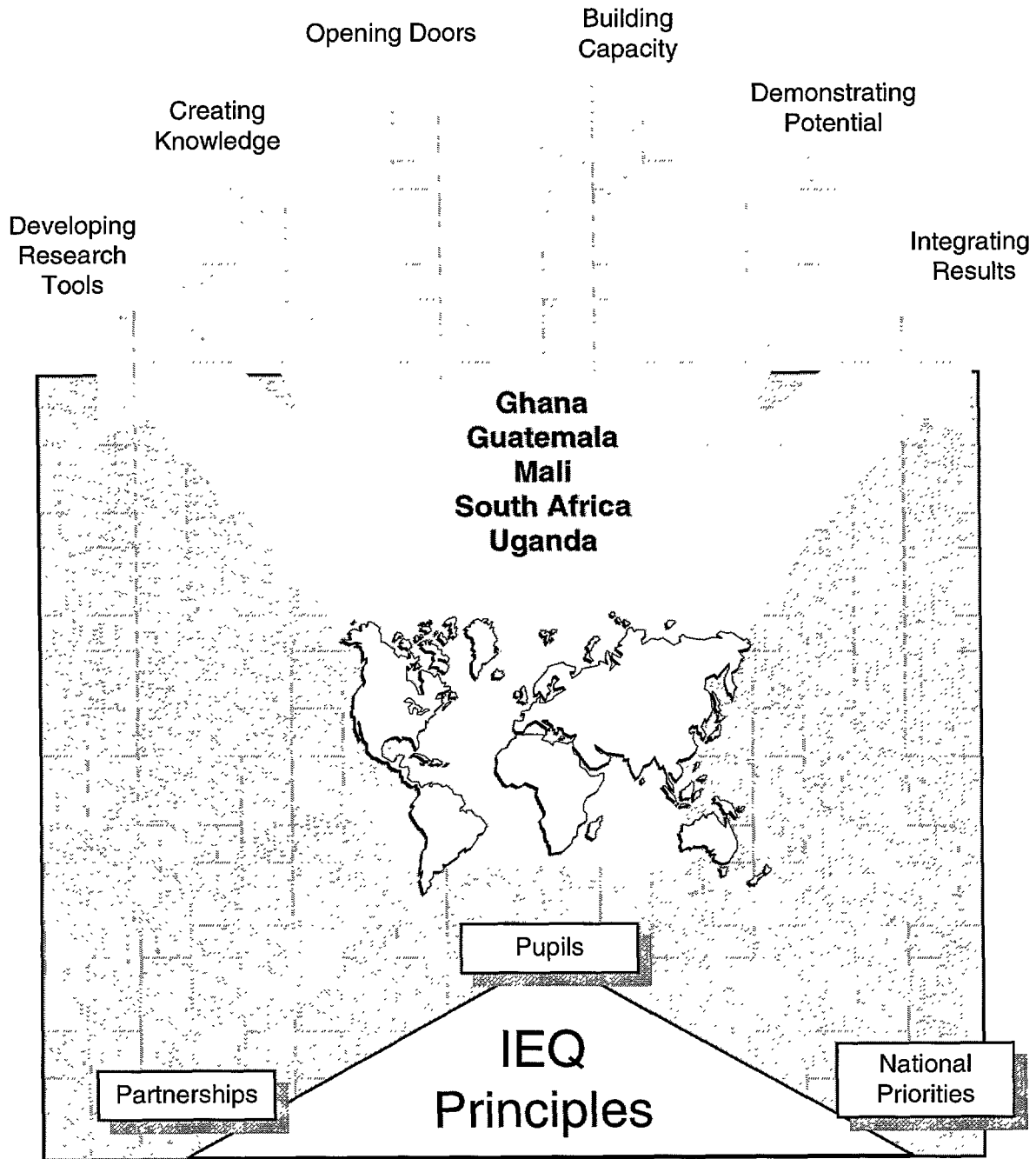
IIR 3/4/96

The cycle described above is derived from a central core of values and principles that permits opportunities for redefining and reshaping an ongoing effort. The three fundamental principles that anchored the design and implementation of IEQ I are (Schubert, 1994):

1. Meaningful discussion and action to improve the quality of education must include concrete information about **pupils** in the classroom, including instructional practice, pupil performance and the classroom environment. All attempts to reform any aspect of education ultimately must reach the classroom. What happens there must be known and shared with diverse audiences.
2. The **priorities** of the nation must guide the process of improving teaching and learning within a country. Findings and information gathered in one environment may not apply to others. Learning occurs in context and it is the contextual knowledge about a nation's schools that opens the door to understanding how the system can be improved.
3. **Partners** are united in the common purpose of improving the quality of education. The traditional technical assistance mode is replaced by a new spirit of collaboration whereby people learn and teach one another. Host country researchers take the lead in their respective countries. Collaboration crosses hierarchical lines.

The following graphic shows how the three principles produced some common outcomes within IEQ I:

The Rhythm of Reform



IEQ I launched an approach to examine educational quality through a research-based, classroom-focused, host country-generated process that included all levels of the educational system and worked as an ongoing cycle. Knowledge generated and accumulated was shared and used to improve the quality of instruction and learning in the schools as well as to formulate policies that strengthened the ability of the educational system to educate its pupils.

The building blocks generated by our partnership with the participating countries in IEQ I may be summarized as follows (Schubert, 1996):

- **IEQ facilitates a system-wide learning environment which is collaborative, reciprocal, continuing and democratic, to induce positive educational change.** The quest to improve is often confused with the need to "fix," thereby resulting in superficial changes that mask fundamental problems. Real learning about how and where to improve educational quality takes time. It requires the involvement and ownership of educators throughout the system in all facets of a reform. Policy-makers need to listen to local educators. Local educators need to listen to policy makers and feel they are part of the system. This requires breaking down the physical and mental walls which isolate efforts to improve education. It's a complicated process, but a simple truth.
- **IEQ uses research as a tool for providing a living perspective on the reality of educational reform.** The local professional teams apply qualitative and quantitative methods to the ongoing collection of information. Questions reflect concerns of national educational reform efforts. The cycle combines theoretical actions and practical conceptualization. The instruments used in each of the five IEQ I countries continue to be used by the local researchers, in new and expanded applications.
- **IEQ examines the dynamics and relationships among factors which influence the quality of learning.** IEQ tries to avoid the "fragmentation" of quality by focusing on the relationships among the elements which influence school quality. Linear, piece-meal thinking is ineffective if fundamental and systemic improvement is desired; for example, examining only the availability of textbooks without knowing how and under what circumstances textbooks are used by both teachers and pupils will not inform us about pupil performance. Interventions may represent changes in the use of elements, not necessarily the introduction of new elements.
- **IEQ provides concrete information about instructional practices, pupil performance and learning environment within the context where improvement is needed.** Changes in education under the rubric of reform often occur in reaction to outside forces which may bear little relationship to the real world of the classroom. IEQ provides information about educational operations "from the ground." Improving the ability of pupils to learn is at the heart of the reform.
- **IEQ facilitates a process where an approach based on a set of agreed-upon principles becomes a country-based operational procedure to improve policy and practice.** The IEQ

analytic perspective begins with an approach that requires assessment of the education system at the school and classroom levels, assimilation of the findings in form and content which is shared through the system, and actions based on the findings at the "top and bottom" of the system. This cyclical process becomes standard operating procedure. It permits a refinement of the questions asked, understanding the effects of changes, and modifying interventions to constantly improve the system. The flexibility of the approach permits individual countries to work within the most appropriate and useful ways to inform and improve their own reform efforts.

III. IMPROVING EDUCATIONAL QUALITY: THE GHANA EXPERIENCE

In Ghana, ten years of "successful" education reform were seen in a new light when it was revealed that 85% of sixth grade students scored less than 40 out of 100 in English on a national test of language proficiency. In fact, most of the scores on the test, which was multiple choice among four possible answers, were in the range of number of correct responses attributable to guessing (i.e., one in four correct). Suddenly the long effort at restructuring and reforming education, that had been supported by more than 500 million dollars of investment (government and donors), was questioned. Did all that work mean anything if the education system was failing at one of its most basic tasks – helping children learn to read and write in English (Harris, 1996)?

The example above is by no means unique to Ghana. Rather, it illustrates a common dilemma shared by many who seek to reform education systems in less developed countries (and indeed, in more developed countries as well). In all countries participating in IEQ, information about the realities of the classroom was not treated as a negative to be hidden away, but instead as a beginning point in a collaborative effort to improve learning and hence, educational quality.

The IEQ project helped collect further data to shed light on the issue of educational quality in Ghana. In-depth research in a small number of schools provided insight into the quality of the learning opportunities being created in Ghanaian classrooms. For example, school profiles showed that in schools where they were available, textbooks were not distributed to students. Teachers, who were held financially accountable for damaged books, were afraid to give them out. (This proved to be the case in Uganda also).

Whether pupils had the skills to comprehend grade-level texts was another avenue of inquiry. IEQ in Ghana developed Curriculum-Based Assessment instruments to determine what students knew (and don't know) in relation to the scope and sequence of the primary school curriculum (Harris, 1994). Testing of students revealed that only four percent of fifth grade students could comprehend fully a fifth grade text. This kind of information began to reveal some of the factors that explain why students were doing so poorly on a criterion-referenced test of language and mathematics proficiency (Harris, 1996). These instruments provided specific results like those

represented for the case of one fifth grade student¹:

Adjura is a girl in the fifth grade in a school in a small town in central Ghana. When initially tested, she was not able to do grade level work. Adjura was able to:

Write 21 words that were correctly spelled
Read only 24% of the “most used” words from the fifth grade text
With assistance read correctly 64% of a text
Read aloud 11.5 words per minute
Decode words with 44% accuracy
Score 28% correct on questions of reading comprehension

The objective in the IEQ Ghana studies was to show whether a student can perform grade level work and, if necessary, to probe downward through the curriculum to the point where a child can perform successfully. The findings produced by such an assessment may be used for diagnostic profiles of individual students, classes and schools. Such profiles may be useful throughout the educational system by teachers, headmasters, teacher trainers, curriculum developers and policy makers. The type of information gathered, that Adjura can only read 24% of the most frequently used words in the fifth grade, or that overall, 85% of grade five pupils are unable to comprehend a reading passage from a grade five text, not only provides a starting point for discussion about the status of pupil performance, but it pinpoints opportunities for improvement.

Interestingly, the assessment revealed that Adjura could read only 24% of the most frequently used words in her text on her own, but when assisted, she could read to 64% of the words. Does that kind of information suggest some instructional strategies? And when essentially the whole class cannot read the grade level text, is it not apparent that an alternative to assigning reading from the text is needed? If, in general, in Ghana pupils have such poor skills, what is needed to help them learn? And how should teacher trainers, curriculum developers and policy-makers respond?

Clearly, we cannot talk about children having access to education if that education does not include the opportunity to actually learn and acquire basic literacy and numeracy. Many arguments can be made for educational quality – economic opportunity, the link between education and health and family planning, literacy and critical thinking as the foundation for democracy, the growing importance of education in an information-based and technologically advancing world. But the simple truth is that unless we address the quality of education, in most cases we end up supporting education systems in which no, or at best limited, learning is taking

¹ The student’s name has been changed.

place (or in which some children are learning despite the obstacles the system creates). It does not take sophisticated economic analysis to qualify this as a waste of resources.

The reality is that most classrooms in developing countries not only fail to create good quality learning conditions, they actually foster conditions that are hostile to learning. Children arrive at school with different intelligences, personalities and learning styles (Gardner, 1991). They have drastically different needs and therefore will learn and progress in their own ways and at their own pace, but all can indeed learn. At times it seems that schools and schooling treat children as if these differences did not matter. Worse, for too long schools have been organized on the assumption that learning is something separate from the rest of our lives, has a beginning and an end, and needs a teacher or teaching to occur. Children are therefore placed in rooms free from distractions and forced to pay attention to a teacher and focus on exercises no matter how tedious or uninteresting they may be. Should we be surprised, then, that most institutional teaching is perceived by would-be learners as irrelevant, boring and arduous (Wenger, 1996).

More simply, do schools and teachers do the most basic things needed to help children learn? For example, additional IEQ research unveiled an obvious dilemma. Ghanaian children are expected to learn to read in schools that almost never expose them to written material. They are expected to learn to express themselves orally in schools where chanting is the primary method of responding. The teacher holds up a pen and says, "What is this? This is a pen. Class, this is a...." And the children reply in chorus, "Pen." In the best cases, the teacher may elicit this one word response from an individual child or two. Clearly, much can be done to improve the quality of such learning situations.

Ghana is by no means unique in this example; similar situations exist not only in other IEQ I countries, but many others. IEQ I provided the opportunity to examine teaching and learning in depth; similar investigations are likely to reveal similar conditions elsewhere. Where educators are willing to take the risk to take a hard look at pupil outcomes, learning can be addressed. Until we address problems related to *learning*, we cannot improve education.

IV. Quality Has to Do with Learning

If we assert that educational quality must be linked to the achievement of learning outcomes, it is critical to know what is intended by the word *learning*. Educational quality, while it refers generally to the conditions which support learning (such as in the research on effective schools)², ultimately has to do with whether learning is taking place or not. Educational quality is much more than the sum of improved school buildings, teacher training programs, curricular reforms, educational material development projects and the provision of achievement tests.

² Research on effective schools is well summarized in Lockheed and Verspoor (1991) and Heneveld (1994). The international survey of five countries carried out by Carron and Chau (1996) illustrates the centrality of the school in determining educational quality.

The World Declaration on Education for All (UNESCO/UNICEF/UNDEP/World Bank, 1990), although it emphasized the need to provide access to basic education for all, also emphasized learning: *"The focus of basic education must, therefore, be on actual learning acquisition and outcome, rather than exclusively upon enrolment...it is therefore necessary to define acceptable levels of learning acquisition for educational programs and to improve and apply systems of assessing learning achievement"*.

What do we mean by learning? It is not simply memorizing what is taught, nor is it being able to perform on a final examination. Fundamentally, learning increases the individual's capacity to benefit from and contribute to society, while increasing one's capacity for further learning. Learning a particular skill provides one with access to work for and with others who value that skill. This is as true of theoretical mathematics as it is of carpentry.

Ultimately, *"learning is the process of personal transformation which increases one's ability to participate in the world, in society"* (Wenger, 1996). This definition is reflected in the words of a forty-five year old woman from Ghana upon completing a literacy program. *"Becoming literate has made me independent. I don't have to ask someone to read a letter, or where a bus to town will take me"* (from Wolf, 1997). By transforming our relations with the world and with others, learning also transforms our identities as social beings. Learning results in the increase of human capacity - an individual's ability to participate in society and to perform tasks that are necessary to survive and prosper. Capable individuals are able to access and use opportunities in their environment. These opportunities include the chance to secure gainful employment, influence political or civic affairs, promote family development, and protect the environment (Levinger, 1995).

If we accept that educational quality has ultimately to do with learning, a problem educators have often faced in focusing on quality is the issue of measurement. On one hand, we have the above kind of definition of learning as personal transformation and empowerment across the full spectrum of areas of human endeavor (outcomes that do not lend themselves to measurement). On the other hand, education systems need to have fairly standardized and reliable measures of whether children are learning. Those who wish to pay attention to the deeper definition of learning often fight against the purveyors of standardized achievement measures. We feel educators have done themselves a great disservice by protracting this debate.

The IEQ project has worked to develop simple, easy-to-understand means to measure what children are or are not able to do (and thus what they are or are not learning). How many letters can a child recognize? How many words can she write? Can he add single digit numbers? The intent of IEQ is not to reduce learning only to what can be measured. We simply want to fill an incredible void that exists in most developing countries - the lack of any systematic data that reflects what children are learning in school. We affirm that we should not sacrifice measuring those basic building blocks of learning in the quest for an elusive measure of the perfect, all-encompassing educational outcome. At a minimum, simple testing instruments of what children can do allow teachers, parents and education officials alike to talk specifically about what children are learning, thus "uncomplicating" the issue of educational quality.

Quality is ultimately defined in terms of how much learning actually takes place, but it also depends on whether the conditions for that learning are being created. In addition to tests of children's capacities, IEQ therefore promotes gathering data on the circumstances within which children are developing those capacities. What do teachers do in class? What is the school environment like? What is the relationship of the community to the school? The results of tests of children and of observations and interviews provide a concrete base from which teachers, parents and education system officials can look critically at the quality of education. IEQ has helped educators at all levels and parents ask questions like, "If children are only able to write a few two and three letter words, then what elements of support for quality learning are missing in their education?"

In Uganda, a team of Ugandan IEQ researchers launched an investigation of school effectiveness, asking questions identified by key policy makers and educators at a national forum on educational quality. Their research focused on: actual conditions of primary schools; classroom interactions; teacher motivation; community involvement; relationships among School Management Committees, PTAs and school administrations; and pupil proficiency in reading, writing and basic math. Twenty-four schools participated in the study from three regions. The findings revealed that basic facilities and supplies were not in place for effective teaching and learning. For example, at one school site, more than 50 children share one math book. Few instructional materials could be found in most classrooms visited. Support within and outside of the system was lacking so that schools were left to fend for themselves.

The transformation of schooling to truly support learning is not simply a matter of gaining more local support and international financing to improve the physical infrastructure, teacher qualifications, instructional materials and management systems. Although a considerable amount of research has been conducted on what can be described as the "education production function" to define those factors considered to influence educational quality (Fuller, 1986; Heyneman, 1989), its utility in actually improving educational policy, planning and management, to say nothing of improving learning, has been problematic. In one recent review of over 400 studies of student achievement, Hanushek (1997) found that there was no strong or consistent relationship between student performance and school resources. He notes, *"the clearest message of existing research is that uniform resource policies will not work as intended...Simply providing more funding or a different distribution of funding is unlikely to improve student achievement"*.

A variety of perspectives and explanations have been proposed regarding why increased resources are necessary but not sufficient for improving learning outcomes. One explanation is that national policies and plans in most developing countries simply are not effectively implemented (Craig, 1990). Another is that our analytic tools are inadequate and they do not take into consideration the complex hierarchy of factors that must be addressed in order to improve quality (Riddell, 1997). These include the health and well being of the child and family; the conditions and relationships within the classroom; the culture of the community and parental involvement in the management of the school; and the policies, planning and organization of the larger educational system. Others argue that national policies and programs (for countries

receiving international assistance) have failed to focus on the school as the crucible where learning takes place (Heneveld, 1994). Finally, others observe that the centrality of the learner consistently is left out of the equation (Abbott, 1997).

Increasingly it is becoming apparent from what we know about the processes of learning that the traditional school is not the answer; rather, it constitutes much of the problem:

It is, in fact, nothing short of a miracle that the modern methods of instruction have not yet entirely strangled the holy curiosity of inquiry; for this delicate little plant, aside from stimulation, stands mainly in need of freedom; without this it goes to rack and ruin without fail. It is a very grave mistake to think that the engagement of seeing and searching can be promoted by means of coercion and a sense of duty.
Albert Einstein, (quoted in Abbot, 1997)

If the focus of policy and practice for improving educational quality should not be the continuing embellishment of the traditional school, then what is quality? A review of perspectives articulated within national policy formulations and in research literature reveals that the concept of educational quality:

- Is multidimensional and relates to:
 - Outputs:** learning achievements and economic/social outcomes;
 - Processes:** the activities of students, the art of teaching, and the tasks of administration, supervision, education planning and policy;
 - Inputs:** the financing, infrastructure, instructional materials, quality of teachers and staff, and professional development opportunities and actions
- Is grounded in cultural traditions, social relations, economic and political life and therefore is unique to each nation and culture;
- Centers on community participation, dialogue and involvement in provincial and national development processes;
- Is dynamic; the definition of educational quality changes over time (see Adams, 1993).

The implication of these findings is that quality is not a "given", or an externally defined standard. Rather, it reflects social negotiation and relationships that are based on experience and

informed by cycles of applied research, reflection and action. From this it follows that quality cannot be imposed; it must emerge as the result of dialogue, consultation and the development of shared definitions leading to consensus that evolves over time to meet changing circumstances.

Because quality is not a given, a focus of IEQ is to promote dialogue around what constitutes educational quality, and around what the variety of concerned actors – students, parents, teachers, administrators, supervisors, policy-makers – can do to improve it. Heneveld (1994) has had success using an effective schools framework for engaging educators in Africa in dialogue about the factors that influence educational quality. What IEQ does is animate that same dialogue with specific information about what children are

learning and what conditions prevail in and around schools. If tests of children show that they have poor to no reading skills, and observations of classrooms, teaching and homes indicate that children are not exposed to written material, dialogue can then focus around what needs to happen to address this specifically. To learn to read, children need to encounter written material. How do we get more written material in front of children, collectively and individually?

Parents, teachers and education officials in Ghana proposed labeling things in the classroom, giving an assignment to children to copy examples of words or phrases they see around them (signs on stores, labels on cans, etc.), having children use textbooks from the lower grades that have simpler language. Since the dialogue was grounded in information and data, interventions could be proposed that responded directly to the real learning needs of children.

In April 1994, the IEQ Mali team hosted a national seminar to share with stakeholders (e.g., parents, teachers, policymakers, community leaders) findings which revealed factors that influence children's language learning in early primary classes. The outcomes of the three-day dialogue included recommendations for specific interventions that were introduced into pilot schools. This was the first time such a dialogue had taken place in Mali.

Quality Link, #6 Winter 1997

This process – having interventions grow out of reflection on real data on student learning and school conditions – can occur at the level of an individual teacher in her classroom or a group of teachers at a school, a district, regional or national level. IEQ seeks to promote informed deliberation and learning at all these levels. For example, the education systems in Uganda and Ghana learned that existing policy on textbooks, which made teachers financially responsible for damaged books, discouraged books being distributed. In both countries, the policy changed.

Jerome Bruner has noted that planning education cannot be conceived as a technical business of simply applying learning theory to the classroom or of using the results of subject-centered achievement testing to modify practice. Rather it requires a "*complex pursuit of fitting culture to the needs of its members and of fitting its members and their ways of knowing to the needs of the culture*" (Bruner, 1996). Today the role of the educational policy-maker and planner is not so

much to design the details for a national reform plan, but rather, to encourage and help design processes required for local policy dialogue, initiatives and innovations that reflect local objectives and values as well as national principles and standards. The participatory policy-planner also helps to create national strategies that are built on successes at the community level in achieving learning of high quality for all children.

V. Three Lenses of Educational Quality

IEQ conceives of planning for educational quality as a process of continuous policy assessment and dialogue, conducted at all levels of society, with both the private and public sectors actively participating in determining the shape of educational systems. No longer is the task of the policy-maker and planner to pose as the all-knowing "expert" who invents, designs and implements an innovation or a reform for an entire nation, financed through national and/or focused international investments. Rather, the role of the participatory policy-maker and planner is to *unleash capacities latent within all cultures and societies to innovate throughout existing interlocking formal and non-formal education systems* (from Farrell, 1997).

Helping design the process of policy dialogue and eliciting the right questions to focus this dialogue are key functions for national and international policy-planners. Using traditional convening roles, such as the *"tertulia"* in Colombia, the *"pitso"* in Lesotho, or the *"guelaguetza"* in Oaxaca, policy-planning can build on long-standing cultural systems of continuous assessment, dialogue, analysis, planning, decision making, implementation and evaluation.

IEQ uses the simple framework of the following domains of questions to focus public analysis so as to stimulate policy dialogue that will address all members of the society, including those who are perceived to be or actually are "the disadvantaged":

Who Learns?

Who has access to and benefits from basic education, including both formal and non-formal education? Who does not? Who is repeating grades? Who is dropping out after a very few years of schooling? Who is in school but is not learning? Who is learning well and why? How is learning measured? How do we know that learning indeed has occurred? Are all students enthusiastic about learning? Can the nation assess whether all children are learning and developing their abilities both for their own good and for their community and nation?

What Is Learned?

How does what is learned contribute to the individual's well-being and to society? What is the nature of curricula, and how are they implemented in schools? What in current curricula are irrelevant to personal and societal development? What new, changed or adapted curricula are needed? Of these new curricula, how much can/should be

developed or selected locally?

How Is It Learned?

What are the processes of learning within the school? How do they reflect the increasing body of knowledge about the conditions that enhance learning? Are informal and active teaching methods of local cultures used to advantage to promote student-directed learning? Are key educational materials designed and developed locally? Are teachers prepared to guide these efforts?

A. Who Learns?

A traditional perspective on educational quality has been that some children are very intelligent and can learn well, while others are dull and cannot benefit much from formal education. The "best" schools, by this way of thinking, select the "best" students. This is considered to be quality!

We propose a concept of quality that is not based on how well a few succeed, but rather on how well all succeed. Quality, thus, is attained when ALL succeed in learning, according to their learning styles and abilities, not just those who are judged in traditional terms to be the most able.

Clearly, by this definition educational quality cannot be achieved through a reliance on the current model of schooling, which is designed to sort, prioritize and select individuals rather than to support learning for all. For example, our current system of standardized tests, and the field of psychometrics which defines that system, is based on analysis of the distribution of performance. This approach to assessment, which is practiced in most formal schooling systems throughout the world, is based on the supposition that the population is normally distributed in terms of learning. The population of learners is sorted into the brilliant, the bright, the average, the dull, and the hopeless - with the latter two categories bracketing the greater part of populations usually described by the term "*disadvantaged*".

Rather than contributing to enhanced learning, the prevailing systems of formal education place priority on screening students, permitting only those identified at the upper end of the distribution to be given further opportunity. The "weakest" are tracked with other low performers. They are characterized as disadvantaged in terms of learning and also often in terms of origin, status and opportunity: e.g., girls, ethnic and linguistic minorities, the poor and the rural.

Contemporary educational research and theory recognizes that every child is a learner, that the human brain has enormous capacity and potential that is largely undeveloped (Kotulak, 1996). Recent work in cognitive science shows that intelligence is not fixed genetically, and that it can

be significantly enhanced especially during the first three years of life within a nourishing, supportive and sensory-rich environment (Perkins, 1995; Levinger, 1994). This scientific evidence undermines many of the traditional assumptions governing approaches to the disadvantaged, who were treated, if at all, through the application of special educational programs (Bereiter & Scardamalia, 1993). What is now recognized is that ALL children respond well in a loving, nourishing, challenging and stimulating learning environment (Gardner, 1983, 1993; Levinger, 1994). Practical guidance on how to exploit what is known about the learning process in developing new forms of school organization, continuous teacher training, new active teaching methods and creative learning environments is becoming increasingly available (Bruer, 1994; Caine & Caine, 1995). Countless educational and school reform projects throughout the world have illustrated the feasibility of applying this knowledge successfully in under-served, poor rural areas and in cultures as varied as Upper Egypt (Zaalouk, 1995; Hartwell, 1996); Colombia (Scheifelbein, 1991); Guatemala (De Baessa, 1996); Mali (Muskin, 1997); and Malawi (Hyde, Kadzamira, Sichinga, Chibwana & Ridker, 1997).

Implications for Policy and Research

- We need to focus on the experience of ALL pupils, analyze who is not learning and why, and empower teachers to address the differing learning needs of all children and to use methods of active group and individual learning.
- We need to develop instruments and methods to assess WHAT children actually do know. This is quite different from tests which show how learners do on a set test in relation to others. A research agenda is required to develop, apply and utilize new assessments of learning with the aim of improving children's learning, rather than of judging performance after a pre-established period.
- Teachers as researchers should focus on identifying those who are not in school or in community learning centers, and why. They should address their learning needs and provide enriched learning environments that attract them to participate in group and individual learning activities.
- We must ask the questions: What do children learn outside of school? What capacities, learning abilities and knowledge do they bring to school?
- What are the implications, for the schools, of emerging insights relating to child development, health, and nutrition? What roles should home and community play to ensure good early childhood development in collaboration with schools and community life-long learning centers of the near future?
- How can we enhance the learning of ALL children in the classroom? How can we ensure

that the type of learning children experience will prepare them for the challenges of a rapidly evolving world?

- How should learning be measured to ensure that all children develop their inborn abilities to the extent possible? Are they gaining essential skills required for effective life-long learning (including critical thinking, problem-solving, creativity)?

B. What Is Learned?

The traditional response to the question of "*What Should be Learned?*" has been that educational quality is best served when there is a rigorous, standardized curriculum structured by the academic disciplines, and taught to all students at the same time and pace. Strict academic standards are observed by covering all of the material in the syllabus. The teacher who is "covering" all the topics in the syllabus usually is deemed to be competent. Students are tested and ranked based on their ability to relate back the content of what they have been taught. Only a few students can be rated excellent, and the toughness of the marking often is considered to be a reflection of high standards and good quality (Fantini, 1986). It has been observed that schools are organized to teach subjects, not children.³

*Everyone would like many subjects to be taught in schools.
However, the use of the word taught should not be permitted if
learning doesn't follow. It is not correct to say 'I taught my son to
swim, but every time he gets in the water he sinks to the bottom.'
Only if learning occurs can we say that teaching has happened.*

Chester Finn, 1990

An alternative concept is that the quality of education should be gauged by the degree to which what is learned contributes to society⁴. Every culture devises means of establishing standards of competence, and of determining how and to what degree those who receive education attain those standards. There are as many different approaches to this central social problem as there are cultures and life requirements. They vary from the Masai test of the young warrior who had to kill a lion to show his courage and skill, to the woodworking apprentice who must complete a

³ Benavot and Kamens (1989) found that virtually all countries incorporate the same subjects into the curriculum of their primary schools and give them the same or similar emphasis. These subjects include reading and writing, mathematics, science, social studies and moral and aesthetic education. More than 50 percent of school time is used to teach language skills and mathematics.

⁴ Although virtually every national policy on education states such an intent, the way that subjects are defined through the official curriculum, generally dominated by subject matter experts from universities, in fact reflects what we are calling here the traditional concept.

masterwork independently to receive the rank of craftsman, to the requirements for professional certifications of doctors who specialize in surgery.

Fundamental to the concept of educational quality is whether what is learned contributes to social well being and to economic progress -- in short the relevance of what is learned and the degree of mastery achieved by those in the education system. These concepts are the essence of what is called "external efficiency" in education.

An alternative approach to the question of *What Is Learned?* derives from the research on the process of learning and the understanding of what the child brings to the school (Gardner, 1991), as well as the definition of basic learning needs as articulated by the *World Declaration of Education for All*. This body of work suggests that most existing curricula are overburdened with imparting detailed fact and are short on building problem-solving skills, expanding critical thinking capacity, and inspiring creative thought, all of which are essential for students to respond to accelerated social and economic changes in the world today. Much of the best educational research and practice today is pointing to a concept of curriculum and learning in which pupils increasingly take responsibility for setting their own learning objectives, based on authentic, real world challenges within their own environments. To achieve these objectives, learners' activities require a multi-disciplinary approach and skills, and should be pursued in collaboration with classmates. Teachers act more as learning coaches, guides and facilitators than as fonts of knowledge or as judges. They help children to explore learning resources, to synthesize, analyze and interpret information, and to create new ideas.

It is critical to realize that to institute and to maintain these approaches, higher per-pupil unit costs are not necessarily required, and that they are particularly appropriate for engaging the minds and hearts of those groups and individuals who have been designated as *disadvantaged*. The following vignette, taken from a description of a school in a poor rural area of upper Egypt, captures the possibilities:

Qum Community School, Upper Egypt.

The classroom walls display many examples of children's art and writing; outside the front door are well tended potted plants labeled with names and their uses. Pupils are working in groups, not in rows. The classroom is colorful and stimulating, furnished with moveable tables, shelves for children's work and reference books and materials. Although the floor is packed earth, areas without tables are covered with mats, on which one group of children sits.

This group of six pupils, four of whom are girls, are preparing a skit which they will present later in the week. They are making puppets to dramatize a family discussion about how to share chores between two brothers and a sister. One child is writing signs which announce scene changes to the audience. The teacher is working with another group of children but comes over to the puppet group to see how they are doing. One of the children asks her if it is true in all countries that girls have more work at home than boys. She tells the children that she does not know the answer and suggests that they look this up by reading about the role of women in the class encyclopedia. She also notes the question down to ask her supervisor who is due to visit the following day.

Implications for Policy and Research

- Appropriate curricula need to be developed, selected or adopted by each learning community. What do parents and community leaders want to preserve of their cultural and linguistic traditions? What new and modern curricula do they and their children want to adopt and why?
- Teachers need to be able to examine connections between curriculum objectives and the learners' own experiences within their communities. To what extent does the curriculum delivered in the classroom lead to actual problem solving related to issues within the learners' (and families') lives and to their future work endeavors?
- To what extent do parents and community leaders view schooling as a means of escape from harsh conditions of the community, or as a means of improving the conditions and opportunities within the community? Do they think there is an economic future for the community? Can those who are educated in the community contribute to this? How does this perception of community needs influence their relationship to the schools and to the education system at all levels?
- How can students, parents, teachers and community leaders best become involved in determining school contents and in assessing their validity for their lives? How can they

best share these experiences between communities and with District Education Offices and Ministries of Education?

C. How Is It Learned?

Schiefelbein (1991), reviewing a decade of research on primary school quality in Latin America, identifies a set of factors which prevent schools from improving:

- few teachers have ever been in an active learning experience;
- too much is expected from teachers' class performance - syllabi and textbooks are big, full of unrelated bits of information, lacking in ideas, bereft of themes, and inert with respect to reasoning skills;
- children are viewed as blank slates on which teachers are to write (which they do almost literally in the extensive use of the chalkboard, with pupils' copying word for word into their notebooks);
- too little time is allowed for students to learn; there are many unscheduled days off, teachers and pupils come late or are absent, and what little time is available for use in class is often poorly managed;
- few learning tasks motivate students to learn; and there is poor, or no, linkage between what is taught and daily life. This is particularly true of rural schools, since textbook material, when it is available, typically portrays urban, upper class contexts.

These distressing conditions appear daunting, particularly when linked to the perception that public financing, parental contribution of school fees, and community contributions in the poorest countries cannot be increased significantly.

However, what is important about these conditions is that most of them are not so much a matter of resource shortages, but rather they reflect practices conditioned by concepts and beliefs about learning, effective teaching methods and the role of the teacher. Contemporary research and theory on learning provide a set of concepts quite different from what is practiced in most schools (Caine and Caine, 1997):

- Learning is natural, all children are learners, and they are learning all of the time;
- Learning is social - it changes one's ability to participate in society;
- The search for meaning and purpose drives the motivation to learn;
- Learning is enhanced by challenge and inhibited by threat;
- Learning takes place through engaging in meaningful practice;

- Learning requires exploration, error, and sympathetic feedback.

These insights and concepts into the process of learning are reflected by research on schools and classroom experience in Asia. Stevenson (1992), in a series of large, cross-national studies during the 1980s, compared learning achievement for children in primary schools in China, Taiwan, Korea, Japan and the United States. Significantly higher levels of learning achievement in Asian schools are related, not (as is generally assumed) to rote learning and repeated drilling by overburdened, tense youngsters. Rather, children in these Asian schools are motivated to learn, and teaching is innovative and interesting. Characteristics of the educational experience for the Asian children include:

- High expectations for children's performance;
- The belief that effort, not inherited aptitude, is the key to achievement;
- Children see schools as fun and learning as interesting;
- Teachers make subjects interesting by relating them to children's everyday lives;
- Considerable time during the school day is given to social activities and games;
- There are a variety of teaching methods and hands-on activities;
- Knowledge is not forced upon children, but they are led to construct their own ways of representing what they learn; and
- Frequent use is made of feedback and diagnostics.

A considerable body of literature now exists on how children learn and on the conditions and the environment necessary to support that learning (Jensen, 1998). There is also extensive experience, some of it in extremely poor, disadvantaged regions of the world, which demonstrates that this knowledge can be applied effectively, at reasonable cost, to provide educational opportunity of high quality virtually anywhere. The precepts defining how we learn described in this paper have guided successful school reforms in cultures as varied as Upper Egypt, Balochistan in Northern Pakistan, rural Colombia, the Mayan highlands of Guatemala, the rural areas of Kerala in India, Botswana, Mali, and in urban areas of the United States. It is not so much that we do not know how to bring about improvements in learning for ALL children by providing the right conditions--even in the midst of poverty and deprivation--as that we do not have the firm and shared commitment to bring this about on a large scale.

Implications for Policy and Research

- How can we promote a wider knowledge and understanding about the findings on cognitive development and learning among policy-makers, educators and the general public?
- Given the increasing number of educational programs that are applying this knowledge, particularly those provided for disadvantaged populations, how do we best disseminate information to ensure this experience is better known, analyzed and understood?
- How do we best scale up successful pilot programs that include only a few hundred schools

to be able to cover thousands of schools for all population groups in a nation or a cultural or economic region?

VI. IMPLEMENTING A LEARNING-BASED APPROACH TO QUALITY

IEQ II draws on a vision of educational quality rooted in learning and applies the three questions –who learns, what is learned, and how is it learned– as the basis for its work. The work continues to be guided by a set of core principles that shape an IEQ, country-based approach to system-wide reform in support of improved educational quality.

We have believed for most of this century that the best way to assure quality in schools is through the development of sector policy and careful, technically correct, educational planning which ensures that all of the inputs presumed necessary for effective schooling are provided, for the most part, by the national government. These policies have involved overall staffing, curriculum, educational materials, supervision and control, school distribution and size. Detailed education plans include the pupil-teacher ratio; the required qualifications for teachers; the requirements for instructional materials for each grade and subject area; the organization of supervision and professional support to schools and teachers; the distribution, size, and design specifications of schools; and the requirements for furnishing and equipment.

All of these centrally-driven policies, strategies and decisions ideally are informed by the best research available. That research is expected to reveal which policies, which inputs, what mix of factors, produces the best outcomes at the least cost. The goal of policy and planning is to produce the desired results – based on the anticipated requirements of the larger economic and social system – at the lowest cost. Or, conversely, to produce the largest gain in educational achievement for a given cost.

This paradigm presupposes that social systems, such as education, can be shaped as can a house, or a bridge, or any engineered product. There are designs, blueprints, plans, costs, and logical linkages between particular inputs (such as textbooks) and outcomes (such as pupils' learning). It is a neoclassical economic framework applied to education. *Those who hold [such a] rationalistic view of decision-making believe that complex social problems can be understood through systematic analysis and solved through comprehensive planning. They assume the existence of authoritative and objective decision-makers whose actions could, if they were carried out correctly, solve economic and social problems. They believe that exhaustive analysis will lead to a concise definition of problems and generate alternatives from which optimal and correct policy choices can be made. They further believe that there are models and theories of social change that will aid in problem definition and policy formulation, and that the resulting policies will respond adequately to human needs, and there is a direct relationship between government action and the solution of social problems* (Farrell, 1997).

The reality of our experience with educational policy and planning is different. After more than 30 years of attempting to apply a rationalistic, top-down model of educational planning, the only certainty to emerge is that educational reform is extremely complex, differing radically among societies, within nations, and over time. What works in one place at one time, does not necessarily transfer to another. This is NOT to say that the research and experience have been valueless; rather, we have learned that we know many of the necessary, but not the sufficient, conditions for planned change and improved educational outcomes. Secondly, we know that certain processes, certain principles, if followed, will lead to improved capacity and organizational learning which in turn improves the management of those resources that are available (Rondinelli, 1993).

The participation of communities and educational practitioners (teachers) in the definition of policy and its implementation is not simply idealism or a passing fad, in reaction to an overly bureaucratic approach to reform - which has largely failed. Education reforms are eminently implementation-intensive. Education planners and administrators simply do not ever have enough information to design implementable and sound programs if they derive such information strictly through technical means (DeStefano & Crouch, 1997).

Policies that support the kind of transformation implied by the application of current knowledge on learning need to ensure *top-down support for bottom-up reform* (Darling-Hammond, 1994). What does it take for this to occur? Several simultaneous things need to happen if improvements in educational quality are to be large-scale, systemic and thus sustainable. These emerged from IEQ I as principles to guide the continued efforts under IEQ II:

1. The focus of investigation is on what occurs inside classrooms and the impact on student learning.

First is a focus on what occurs inside classrooms and on how what occurs (or doesn't occur) impacts student learning. That focus derives from attention to the learning process – what we know about how learning occurs and how it can be enhanced. Implied in this focus is the idea that all the actors involved in education need to reflect on what we know about learning and its implications for schools and teaching. The focus on classrooms also translates into a need for sound information about the reality of what goes on in classrooms and what students can and cannot do. That information needs to circulate in a variety of ways among the full range of stakeholders and actors in the education system – teachers, communities, officials, NGOs, CBOs, church groups, parliamentarians, etc.

The focus on the classroom also implies direct support to teachers, schools and communities. That support needs to be predicated on what we know contributes to school effectiveness and has to be grounded in a collaborative engagement in reflection on what students are able to do, what

the conditions created for them are (and are not) and what frameworks and insights can be applied to help all concerned learn how to improve the quality of that situation.

2. Involving a community of learners--within a classroom, school, community, education system, and internationally--promotes sustainable improvements in educational quality.

Our approach to improving educational quality stresses the importance of the learning process not just for children, but for the full community of learners implicated – directly and indirectly – in facilitating and supporting that learning process. We therefore speak of a focus on the community of learners – within a classroom, within a school, within a school and community. All the adults supporting children’s learning need to see themselves as learners engaged in a process of growing understanding and experience in how to better teach and support children. It is through this community of learning that educational quality improves (and does so in a way that is inherently sustainable).

As we speak of the community of learners engaged in learning and thus improving the quality of education in any individual school-community, we can also talk of the larger, extended community of learners that constitute a group of schools, a school district and its support offices, and eventually the education system. In this manner, we extend the notion of a community of learners to eventually include all the actors involved in and concerned with the education system. This implies the need to create learning opportunities for all these actors.

Those learning opportunities require information and a forum in which information can be confronted, understood, and debated, and in which new knowledge can be built. These learning opportunities also require directed facilitation (Crouch & Healey, 1997).

In extending the centrality of the learning process and the concept of a community of learners all the way to the system level, we are talking about increased attention to **system learning**. Or more directly, we treat an education system as a learning organization.

It is persuasively argued in the series *Education Reform Support* (1997) that reforms at the school or community level are marginalized and unsustainable unless they are conceived as a contribution to policy dialogue and policy reform. They are like many projects, short-lived and isolated, unless they contribute to system learning. We therefore advocate working to:

- Create the space within which reforms can be tried out. Typically, existing bureaucratic practices punish innovation and departure from the status quo, while rewarding business as usual. This must be changed for action research at the school level to be developed and encouraged;

- Use that space creatively through full participation of key actors, building on existing knowledge, focusing on results, monitoring outcomes, learning how continually to improve pupils' learning. We speak of filling space with good quality practice;
- Ensure that lessons are derived from innovation within cleared space, allowing the drawing of implications for reshaping the policies, institutions, individuals and relationships that constitute the education system. Such reshaping is evidence that the system has indeed learned.

3. Enhancing quality requires the forging of new ways of relating to one another based on collaboration within and among organizational units/levels.

All of the above implies the need for well-orchestrated collaboration. The work of improving quality in the way in which we have just described is in fact the work of forging that collaboration. It is only in redefining relationships that educational quality can improve: the relationship between a teacher and her students, the relationship among students, the relationship among teachers, the relationship between teachers and the director, the relationship between the school and community, between the school and the education system.

Schools and classrooms are where the work of policy-makers, planners, curriculum developers, teacher training institutions and administrators comes together. If the reforms or policies don't make a difference within the classroom, of what value are they?

The essence of providing support to building educational quality so that ALL children can learn requires a culture that supports organizational learning. This requires a focus on the teacher who in turn focuses on the assessment of children's learning and uses the findings to constantly invent opportunities for improving teaching and learning. It involves policy-makers and administrators in planning, conducting and utilizing research in partnership with teachers, and utilizing those results to provide the support children, teachers and schools need.

VII. CONCLUSION

An emergent world asks us to stand in a different place. We no longer stand at the end of something we visualize in detail and plan backwards from that future. Instead, we must stand at the beginning, clear in our intent, with a willingness to be involved in discovery. The world asks that we focus less on how we can coerce something to make it conform to our designs and focus more on how we can engage with one another, how we can enter into the experience and then notice what comes forth. It asks that we participate more than plan...Every act of organizing is an experiment. We begin with desire, with a sense of purpose and direction. But we enter the experience vulnerable, unprotected by the illusory cloak of prediction. We acknowledge that we don't know how this work will actually unfold. We discover what we are capable of as we go along (Wheatley, 1996).

SOURCES

- Abbott, J. (1997). Why good schools alone will never be enough. New York: The Manhattan Institute.
- Adams, D. (1993). Defining educational quality. Educational Planning 9(3), 3-18.
- Benavot, A. & Kamens, D. (1989). The curricular content of primary education in developing countries. Policy, Planning and Research Working Paper 237. World Bank, Population and Human Resources Department. Washington, D.C.
- Bereiter, Carl, Scardamalia, Marlene (1993). Surpassing ourselves. Open Court Publishing.
- Bruer, J. T. (1994). How children learn. Executive Educator 16(8), 32-36.
- Bruner, J. (1996). The culture of education. Cambridge, MA: Harvard University Press.
- Caine, R. & Caine, G. (1995). Reinventing schools through brain-based learning. Educational Leadership 52(7), 43-47.
- Carron, C. & Chau, T. (1996). The quality of primary schools in different development centers. Paris: UNESCO, IIEP.
- Craig, J. (1990). Comparative African experiences in implementing educational policies. Washington, DC: The World Bank.
- Crouch, C. & Healey, H. (1997). Education reform support. Vol. 1. Washington, DC, Office of Sustainable Development, Bureau for Africa. USAID.
- Darling-Hammond, L. (1994). Performance-based assessment and educational equity. Harvard Educational Review 64(1): 5-30.

De Baessa, Y. & Girón, R. Y. (1996). The experience of girls in IEQ Guatemala classrooms. The Quality Link (Newsletter of the Improving Educational Quality Project 5, 6-8.

De Stefano, J. & Crouch, L. (1997). Education Reform Support. Vol 2. Washington, DC: Office of Sustainable Development, Africa Bureau, USAID.

Fantini, M. D. (1986). Regaining excellence in education. Columbus, OH: Merrill.

Farrell, J. (1997). A retrospective on educational planning in comparative education. Comparative Education Review 41(3).

Finn, C. (1990). The biggest reform of all. Phi Delta Kappan, V.71,n.8.

Fuller, B. (1986). Raising school quality in developing countries: What investments boost learning? World Bank Discussion Papers No. 2. Washington, DC: The World Bank.

Gardner, H. (1983). Frames of mind. New York: Basic Books.

Gardner, H. (1991). The unschooled mind: How children think and how schools should teach. New York: Basic Books.

Gardner, H. (1993). Multiple intelligences: The theory in practice. New York: Basic Books.

Hanushek, E. A. (1997). Assessing the effects of school resources on student performance: An update. Educational Evaluation and Policy Analysis 19(2).

Harris, A. (1996). The role of assessment. Williamsburgh, VA: Comparative and International Education Society.

Hartwell, A. (1996). Applying what we know about learning to projects: The experience of community schools in Upper Egypt. Paper presented at the Comparative and International Education Society Annual Conference. Mexico City, Mexico.

Heneveld, W. (1994). Planning and monitoring the quality of primary education in Sub-Saharan Africa. Washington, DC: The World Bank.

Heyneman, S. P. (1989). Third world school quality: Current collapse, future potential. Educational Researcher. Vol 18, No. 2, pp.12-19.

Hyde, K., Kadzamira, E., Sickinga, J., Chibwana, M. & Ridker, R. (1997). Village based schools in Mangochi Malawi: An Evaluation in determinants of educational achievement and attainment in Africa (R. Ridker, ed.). Washington, DC: Institute for Policy Reform.

Jenson, E. (1998). Teaching with the brain in mind. Alexandria, VA: ASCD.

Kotulak, R. (1996). Inside the brain: Revolutionary discoveries of how the mind works. Kansas City, MO: Andrews & McMeel.

Levinger, B. (1994). Nutrition, health and education for all. Newton, MA: Education Development Center.

Levinger, B. (1996). Critical Transitions: Human capacity development across the lifespan. Newton, Massachusetts: Education Development Center.

Lockheed, M. & Verspoor, A. (1991). Improving primary education in developing countries. New York: Oxford University Press.

Perkins, D. (1995). Outsmarting IQ: The emerging science of learnable intelligence. New York: Free Press.

Riddell, A. (1997). Assessing designs for school effectiveness research and school improvement in developing countries. Comparative Education Review. Vol 41, No. 2.

Rondinelli, D.(1993) Development projects as policy experiments: an adaptive approach to development administration. New York: Routledge.

Schiefelbien, E. (1991). In search of the school of the XXI century: Is the Colombian Escuela Nueva the right pathfinder? Santiago, Chile: UNESCO Regional Office for Education in Latin America.

Schubert, J. (1994). Classroom profiles as a stimulus for improved policy and practice. Mombasa, Kenya: Association for Educational Assessment in Africa.

Schubert, J. (1996). A snapshot of IEQ. Williamsburg, VA: Comparative and International Education Society.

Stevenson, H. W. (1992). Learning from Asian schools. Scientific American 266(12), 70-76.

UNESCO/UNICEF/UNDEP/World Bank (1990). World Declaration on Education for All. Paris: UNESCO., p.10.

Wenger, E. (1996). Communities of practice: The social fabric of a learning organization. Healthcare Forum Journal (July), 20-26.

Wheatley, M. & Kellner-Rogers, M. (1996). A simpler way. San Francisco, CA: Berrette-Koehlner Publishers.

Wolf, J. (1997). How Educating a Girl Changes the Woman She Becomes: An inter-generational study in northern Ghana. Washington, D.C.: Office of Sustainable Development, Bureau for Africa, USAID.

Zaalouk, M. (1995). The children of the Nile: Community school projects in upper Egypt. Education for All Innovation Series, No. 9. Paris: UNESCO.