
EDUCATION REFORM IN LATIN AMERICA: A REVIEW OF ISSUES, COMPONENTS AND TOOLS

Juan Carlos Navarro
Martín Carnoy
*Claudio de Moura Castro**

I. A Time for Education Reform

A. Education as a catalyst for development

There is a growing general consensus in Latin America and the Caribbean on the need for education reform and its urgency. Throughout the region, education reforms are unfolding, driven by arguments concerning growth, productivity and global competitiveness, as well as social equity. There are signs all over that, beyond rhetoric, very concrete steps are being taken to improve education. This paper aims at describing the main components of the idea of “education reform” as it is emerging out of the Latin American experience. Education reform is a multifaceted issue, encompassing somewhat complex technical aspects. It begins with the very definition of the indicators of student, teacher and system performance, and includes political-economy issues, such as the role of unions, the need for widespread social cooperation and consensus, etc., that are so far only imperfectly understood and, in any event, difficult to deal with. Rather than beginning with a formal definition, the authors hope that the idea of education reform will become clear as we proceed. The paper to a large extent sidesteps answering the question about “why” all this is happening in Latin America today, and focuses on the “how” and in the prospects for the future. This initial section, however, offers some contextual elements worth considering in understanding the region-wide drive towards changing and upgrading educational systems.

The world economy has gone through enormous changes in the past 20 years, and these have made the quality of education systems far more important to nations’ economic health. Global competition and the

Juan Carlos Navarro, Social Development and Education, Inter-American Development Bank

Martin Carnoy, Department of Education, Stanford University

Claudio de Moura Castro, Chief Education Advisor, Inter-American Development Bank

information and telecommunications revolutions are at the core of these changes. Economic growth under the new conditions requires national infrastructures that include, among other elements, a labor force with a solid base of reading skills, mathematical and scientific knowledge, problem-solving capabilities and even computer skills, as well as the capacity to communicate effectively. The transition to democracy in Latin America has given schools another major responsibility: the development of a civic culture that stresses tolerance, cooperation, and a broader sense of nation-community. After more than a decade of market-oriented economic reforms, the low levels of educational achievement of most of the work force and the uniquely high disparities in social and economic opportunities among citizens remain key issues that are widely believed to be factors undermining the region's developmental potential:

- **Learning in schools, by all accounts, remains strikingly deficient in all but a few elite institutions:** Latin American students included in international testing research projects -like TIMSS- consistently score at the bottom of developing countries. The region's educational institutions are amongst the worst rated by international leaders and investors (World Economic Forum, 1997). Teachers are everywhere reported as having inadequate training and worse working conditions.

- **Emerging or consolidating democracies experience deficits in civic education in the population.** There is widespread support for the idea that a good education not only includes good subject learning but also increased awareness of the basic rules of citizenship in a modern society. This practice should start at the school level, yet little is known or energetically carried out in this regard.

- **The region exhibits the largest income inequality in the world, which at the same time reflects and perpetuates disparities in educational opportunities for different groups in the population.** In 1990, the gap in years of education between the richest 10 percent of 21 year olds and their counterparts in the poorest 30 percent, was four or more in 9 out of 15 countries included in a recent IDB analysis. For at least four countries it had actually increased when compared to what it was in 1980. To a certain extent, education remains a factor in reinforcing inequities rather than in reducing them.

- **Young workers in the region enter the labor force with less years of education on average than workers in Southeast Asia and even other developing regions (Birdsall, 1998; Filmer and Pritchett, 1998), and the gap is widening.** In spite of substantial gains in the reduction of illiteracy, in gender equality and in access to primary education, the percentage of children who

fail to complete primary schooling is almost twice that of which would be expected for the region's income level (IDB, 1996).

But today, such accumulated deficits are mobilizing ever-expanding constituencies that include parents, students, teachers, governmental authorities, businesses, non-governmental organizations and the media. These constituencies are vocally demanding more resources, new policies and better decisions for the education sector; resources, decisions and policies good enough to turn education systems into institutions capable of addressing the economic, social and cultural challenges of the global economy. This mobilization is happening because education is increasingly seen as the natural incubator and safeguard of contemporary citizenship and democratic values. After years of lack of innovation and poor quality, change is brewing.

And it is systemic change, hence all the emphasis in the idea of reform rather than just adding up resources to institutions or practices already in place. In Latin America and the Caribbean, education is not only becoming a real priority in the budgets, but also in the minds, words and actions of leaders, who increasingly invest substantial political influence and technical capacities in attempts at revamping education systems and visibly upgrading their performance levels.

• **Education is increasingly seen as the most important catalyst for development.** *It is these systemic reforms, their timing, and the strategies appropriate to implementing them that are addressed in this document.*¹

Latin America faces real financial constraints in improving education, and this too shapes educational reform. Most countries in the region were confronted by a massive debt crisis in the early 1980s, just when they should have begun transforming their industrial base and investing heavily in the improvement of their educational infrastructure. Latin American education was already confronting serious quality problems in the 1970s, and economic problems in the 1980s delayed resolving these issues. Although educational expansion continued in this period of financial crisis, it did so at the cost of allowing educational quality to stagnate or decline even further. With the resumption of economic growth in the 1990s, pressures to keep public spending down continue. Financial considerations are, then, a key element in the reform process.

There are other constraints. National educational systems have been organized historically in particular ways, with vested interests built around existing organizational structures. What is taught and how it is taught have long histories. Examination systems and the curricula they drive have become cultural icons. The educational system in many coun-

tries, states, and municipalities is the single largest employer and single largest source of income for local professional cadres. Such structures are extremely difficult to change because they are as much a way of life as of making a living.

Improving learning must transform the day-to-day activities in schools and classrooms. If teachers and pupils show up at school sporadically, learning is also sporadic. If teachers' knowledge of mathematics and language is only somewhat greater than that of their students, it is more difficult to improve the teaching-learning process. If principals of schools are not innovative educators with considerable knowledge of "good practices," the educational reform process hits barriers at the doors of the school.

Most of Latin American schooling is based on traditional and largely outdated "chalk and talk," where the teacher delivers subject matter from a prescribed curriculum to passive pupils. Pupils, in turn, often have little access to textbooks and other learning materials. In some cases, local interpretations of "constructivist" teaching philosophies militate against even using books. Improving quality has usually meant changing the curriculum, since curriculum is viewed as the "technology" of teaching, and hence learning. But reformers are now beginning to realize that even a better-designed curriculum may do little, in and by itself, to improve learning. Unless the process of "delivering" the material is transformed so that pupils are engaged, and unless other changes in schools are made simultaneously, pupils may continue to learn little even with a better-designed curriculum.

Reforms need to be rooted in realities at the local level. They need to focus directly on improving the quality of teaching and learning in the classroom, including, in most countries, increasing the real time that teachers are teaching and students are actually learning. This requires implementing accountability systems, educational management, and financial reforms that are aimed directly at producing improvements in learning.

Equity also plays a role in reform. Education is widely viewed as an important means to more equal job and income opportunity. But it is also viewed as essential in building democratic values (see Box 1), and democracy is rooted in equity. Yet, despite almost universal access to primary education and rapid expansion of secondary schooling, Latin America still uses about 20 percent of its public resources for education on the 5 percent of the total student population attending universities. Because public primary and secondary

BOX 1. Civic Education

A major question for policy in today's changing world is the role of schools in developing civic spirit, social responsibility and moral behavior. This may have to do with courses on civic education but it is far more than that. Most countries in the hemisphere have been subjected to serious economic crisis, which only now seem to abate in many of them. Social disruption and fast migration to towns took place, with the consequent disintegration of traditional cultures and social solidarity based on personal ties. Extreme poverty, authoritarian regimes, weak legal systems and debilitated human rights have taken their tolls on the integrity of societies and on individual morality and created anomie and discontent.

The role of families in developing values and citizenship cannot be underestimated. Yet, when families break down and parents face a hostile environment, their ability to behave as good citizens is weakened, and they become handicapped in the upbringing of their children. That puts an even greater burden on schools. They have to do their part and they have to compensate for the shortcomings of many parents. In fact, a main rationale for public education is the transmission of values and norms from one generation to the next. It is easy to agree with this mandate but the implementation is fraught with difficulties and perplexities.

Civic education in Latin American Schools, as in other parts of the world tends to be seen as a matter of including another discipline in the curricula or adding such content to Social Studies disciplines. Often, nationalist values are stressed in them, as can be gauged by examining textbooks. In most cases, Civic Education courses are a mixture of information to acquaint the students with the way governments work, with rights and obligations, with the Constitution and attempts at instilling loyalty to the country or to the particular government in charge.

These efforts are not to be derided. Learning how a country works and what the standing rules are is valuable in itself. But we should not confuse the transmission of this information with the role of schools in developing citizenship, social responsibility and moral values. Whether or not Civic Education courses can contribute to the development of such traits is not well known.

Nevertheless there is strong evidence that children learn the values practiced by the school, not the values preached in Civic Education courses or elsewhere. Children learn values and behavior by examples, not by what is written in the books or by that the teachers tell (Cole, 1996; Dreeben, 1968). In good schools, the very structure and organization of classrooms conveys these values and norms. In good education, children are rewarded by teachers as much for cooperative behavior and completion of tasks as for academic prowess. The norms are clear and everybody is treated in accordance with them. Ethical behavior is rewarded, anti-social behavior is penalized. Generosity and tolerance are encouraged.

The school teaches by practicing and internalizing these values and norms that are conducive to peaceful and constructive social behavior and at the same time apparently contribute to higher productivity in modern work organizations (Inkeles and Smith, 1974).

The implications of these considerations are not trivial. They point towards the need to be concerned with the integrity and seriousness of schools as institutions, more than with specific disciplines that teach this or that. If good schools socialize students to become responsible citizens, what is important is to improve the ethos of schools, their pride as serious institution, to make them better as learning places and as social systems in which students, teachers and administrators interact, following explicit rules which are just and fair. One clear implication is that developing citizenship, operating inside the school and teaching content are part of the same package.

schools are of generally poor quality, pupils from low socioeconomic backgrounds are less likely to succeed academically, and are greatly under-represented at higher levels of schooling. This is clearly an area where, instead of a quality-access trade off, investment in education should be able to produce better access and equity in the distribution of public benefits by improving quality. Better primary and secondary schools will produce a better and socially more diverse pool of candidates for higher education.

B. EDUCATION REFORM: ONE PRIORITY, DIFFERENT INITIAL CONDITIONS

As a first step, any rigorous analytical treatment of the subject of reform needs to take account of the variety of economic, social and educational conditions within the region and the large variation of educational conditions within countries. Some countries are highly developed and industrialized, with high average levels of education among the youngest age groups in the labor force. Others have high average levels of education in some regions of their countries, and very low in others (for example, Brazil, Colombia, and Mexico). A third group of countries is much less developed and has a high percentage of young people who do not finish primary school. These different groups of countries all have different capacities for reform and need reforms with different initial objectives.

A useful way to characterize the educational systems in the region is to think of where they are situated in their historical development. Most Latin American countries' educational systems (or, in some cases, different regions within the same country) can be approximately characterized as falling into one of two "stages" of development. These levels are

approximate, and they often appear jointly in the same country. Even less have a normative nature. But they are useful in pointing out that prescribing the same educational strategy for every country in the region ignores the significant differences in the educational problems they face.

- *Stage 1:* Countries at this stage have already implemented an expansion of public primary schooling but still have considerable dropout rates from primary school and limited access to secondary school and university. Public primary expansion was marked by a decline in both the average socioeconomic background of students who attend public primary schools and in the average socioeconomic background of the teachers who teach them. The rush to open schools in countries at this level is associated with very high repetition and drop out rates in the first years of primary education. Students generally do not have access to textbooks. Teaching materials are limited. Attendance of both students and teachers is often sporadic in schools serving low-socioeconomic background students. Primary and secondary schools—usually private—catering to the elite look extremely different from the average public school. Thus, the main goal of the countries (or regions) at this stage of educational development is to make primary schools “functional”; to provide them with the necessary inputs to supply standard primary education to all schools—eventually reaching those which cater to lower social class children, 6-14 years old. Reducing teacher and student absenteeism in lower-end primary schools is particularly important. As a result of this effort, repetition rates in primary education should decline, and secondary schooling should expand rapidly, but probably with a reduction in the quality of average academic secondary education, and increasing repetition rates. At this stage, the main improvements in a country’s student performance occur through rapidly increasing average levels of attainment and by providing conventional inputs (for example, regular attendance and books) to schools.

- *Stage 2:* Having enrolled all students in primary and lower secondary education and managed to put in place all inputs, the next step has been to concentrate on the more elusive task of further improving quality. For countries at this second level, primary and secondary education for the mass of students begins to be transformed through improvements in the preparation of teachers and pedagogical techniques, and in the resources available to teachers in classrooms.

Educational management also needs to improve with greater parent participation, increased management accountability, and increased information on pupil and student performance. Many of the dropout problems associated with the primary level for countries at Stage 1 apply to greatly expanded secondary education, usually also marked by a decline in the quality of these higher levels of schooling. The main goal of countries at this level is to bring teaching, curriculum, and teacher education up to the standards of the more developed countries and to put into place the administrative structures that will produce such improvements. Equity in quality of schooling becomes much more of an issue than merely equity in access to schooling.

These categories can provide guidance in understanding the kind of educational policies effectively adopted in countries. Educational systems often expand rapidly because governments worry about low enrollment, and its implications for economic development. But under the pressure to offer more classroom space, nations often allow educational quality to slip to dramatically low levels, especially if the expansion is rapid rather than evolutionary. Once the rush to universalize schooling is over, their next preoccupation is to tackle the more blatant and visible shortcomings, such as lack of books, sorely unprepared teachers and gross inefficiencies in school management. School improvement is the hallmark of Stage 2. Once the obvious and strictly necessary inputs are in place, they find that quality is still poor compared to that in rich countries. Therefore, they need to work on more subtle and elusive problems.

The stages are not deterministic and even less normative. But they explain that a plan to reform education in El Salvador has different priorities compared to an effort to improve education in Uruguay. This latter country is presently struggling to reduce the number of subjects in middle school and to obtain greater focus in the curricula. It would not make sense in El Salvador to face severe political and technical obstacles to deal with the problems associated with Uruguay's educational system. Schools in Southern Brazil are experimenting trying to use computers to improve learning. In the Northeast, giving one textbook to each child and making sure that teachers are teaching comes first.

The fine line of policy reform is to balance immediate priorities with actions that sensibly try to anticipate the problems to be found in the next stage. For instance, a relatively poor country could promote growth in primary enrollment while simultaneously trying to avoid the precipitous fall in quality observed elsewhere. The challenge for countries and donor agencies is to acknowledge the most urgent problems and, simultaneously, explore means to avoid the difficulties experienced by other countries that have already achieved "functioning schools."

The discussion that follows covers issues that cut across several levels of education, other than higher. First we deal with four major issues that have emerged as the main components of education reform in the region:



Table 1

NOTES: *Italicized numbers* indicate 1992 statistics.

* Refers to higher secondary only: Bolivia - 4 years; Brazil - 3 years; El Salvador - 3 years; Venezuela - 2 years.

† Due to its low enrollment ratio, Haiti could also be considered Pre-Stage I;

‡ Numbers refer to some states in Brazil.

Definitions: **Gross enrollment ratio** is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Estimates are based on UNESCO's classification of education levels, as follows. **Preprimary** provides education for children not old enough to enter school at the primary level. **Primary** provides the basic elements of education at elementary or primary schools. **Secondary** provides general or specialized instruction at middle, secondary, or high schools, teacher training schools, and vocational or technical schools; this level of education is based on at least four years of instruction at the primary level. **Tertiary** requires, as a minimum condition of admission, the successful completion of education at the secondary level or evidence of attainment of an equivalent level of knowledge and is provided at universities, teachers colleges, and higher-level professional schools. **Net enrollment ratio** is the ratio of the number of children of official school age (as defined by the education system) enrolled in school to the number of children of official school age in the population.

reform process and policy dialogue, teachers (training, careers, incentives and organization), decentralization/school autonomy and technology. We then focus on three major tools for influencing the performance of education systems that remain relatively underutilized in the region (financing, information and testing/evaluation/information). A brief final section summarizes the main conclusions.

II. ISSUES IN IMPLEMENTING EDUCATION REFORM

Four major groups of issues have become an almost required component of any major education reform effort in Latin America: policy dialogue; teacher's training, career and incentives; decentralization, school autonomy and community participation; and the applications of technology to education.

A. Dynamics of the reform process: involving stakeholders and promoting policy dialogue

Reforming education in any country is a difficult process. But in Latin America, as in much of the developing world, where there is little tradition of well-educated, relatively efficient, merit-based local level administration with internalized professional norms, educational reforms not only have to change the way schooling is delivered, but simultaneously build the capacity to implement the changes. Reform requires leadership, although that alone is rarely sufficient to make reform successful. Leaders must foster consensus and build coalitions among

bureaucrats and businessmen, unions and public opinion, principals and teachers, as well as parents and students, since educational reforms cannot be drafted in central or provincial ministries and decreed from the top down. Reforms need to involve key stakeholders in all phases of the process—analysis, policy dialogue, implementation, and evaluation.

In the best of all worlds, reforms, once underway create their own dynamic and serve to weaken traditional obstacles. This is the case when reforms unleash talent and innovation that was previously constrained by institutional obstacles or policies that stifled local initiatives. It is also the case when new structures are developed that work to increase effort. For example, decentralizing control of educational finances and supervision to communities may greatly improve teacher and pupil attendance and function much better than traditional teacher supervision mechanisms. Evaluative examinations that show how schools are doing over time may stimulate teachers and principals to try much harder than before to improve pupil performance.

But how these well-conceived reforms fare in the real world at the local level depends largely on three factors:

- **The capacity of key actors to implement the reforms.** Many reforms assume that by simply decentralizing control over decision-making or creating a much better curriculum or sending books to schools or making in-service training available to teachers, teaching and learning will spontaneously improve. This is rarely the case. Beyond creating new structural conditions that promote change, reforms need to improve the capacity of teachers and administrators (beginning with school level administrators and extending to municipal, state, and provincial administrators) to deliver educational services more effectively. Capacity building includes developing information systems, dissemination mechanisms, and evaluation systems and training key actors to use them to improve teaching and learning.
- **Appropriate policy dialogue and social marketing.** For reforms to be supported by various groups, the latter not only need to be included in the process, but reform also has to be transparent and engage teachers, parents, business groups, labor unions, and educational administrators. Transparency derives from honest social marketing that includes the interaction of applied policy research with reform processes and consistent and reliable information about the results of the reforms. The interaction of applied policy research with reform process can be very fruitful (e.g. Reimers and McGinn's work on HIID experiences; 1997). It naturally leads to question "top-down" models of technical assistance that multilaterals have traditionally applied and

think more of the role of participatory approaches. Good illustrations of new approaches are given by the work done by AED on lessons learned from implementation of education reforms in the region. The PREAL-Inter-American Dialogue project also had interesting experiences on the way, built on the premise that domestically-based non-governmental reform entrepreneurs with some foreign assistance can provide undersupplied leadership with policy analysis and strategic direction to reform processes. Lessons from the work being done by President Aylwin in Equator and Guatemala, centered around policy dialogue as a primary tool, could be applied to similar exercises with a narrower subject focus. Along the same lines, recent experiments that use marketing techniques to “sell” reform are particularly promising. The Bank should undertake comparative assessments of these initiatives and develop loan formats appropriate for their support, whenever appropriate.

- Reforms also need to put emphasis on **the structure of checks, balances, and incentives** that will change the way individual actors behave. The starting point of such incentives is including key stakeholders in decision processes, thus developing ownership of reform by key actors. But it also includes doing serious institutional analysis as part of the reform and determining the variables that could change institutional behavior to achieve reform objectives. What is the probability that there will be serious political resistance to the reforms from various groups? Do institutions exist that are willing to implement the reform? What is the incentive structure that will make reforms self-reinforcing and durable?

In sum, education reforms can only work if education administrators, teachers, and parents support the changes, know how to implement them, and have the motivation to do so. Similarly, how educational reforms are implemented is conditioned by the way they are marketed and interpreted by key actors, as well as by their technical capacities and the information they can get about the options available. Until recently, many reformers, including international lending agencies, paid surprisingly little attention to institutional capacity and problems of implementation. They have now learned that the process of developing the reform and the human capital available to carry it out are absolutely crucial to reform projects, just as the success of a business depends on the individuals running it as much as the attractiveness of the products it produces.

B. TEACHERS: PARTNERS IN REFORM

1. Teachers and teachers' unions

The key to school improvement in all societies is good teaching. This has always been known to anybody close to educational activities, but contemporary research on education policy has led to strong confirmation of this old truth by firmly establishing the considerable impact that a good teacher can have on students (Harbison and Hanushek, 1992). Since teachers have considerable autonomy in their classrooms, educational reform and improvement requires the support of teachers as individuals. Since most teachers in Latin America are unionized, teachers' unions are a key player in the dynamics of educational reform.

Conventional wisdom has it that unions oppose educational reform, even if they may have not always been entirely effective in that regard (Murillo, 1997). The reforms promise to increase educational efficiency, and if teachers oppose, they can be easily characterized by reformers as self-serving, not interested in the education of children but only in their own salaries and well being. Indeed, teachers' unions in LAC countries have generally done poorly in getting the public to identify with their position, in part because teachers' unions have rarely fought for reforms that increase educational performance of children. And whereas individual teachers have often been admired for their fine efforts on behalf of improving pupils' learning, teachers' unions have, as a collective of teachers, rarely helped to initiate change that would make schools more effective. In essence, while demanding that teachers be treated as professionals, unions have usually interpreted their role as representing teachers only as employed workers. Indeed, teachers' unions in some countries where teachers receive salaries similar to those in the labor force with the same education and where there is a surplus of teachers also claim to be underpaid and oppose reforms. Extremes like these have in some contexts carried a cost for unions, as in those cases in which education reforms have advanced by appealing directly to individual teachers, bypassing the role of union officials (Minas Gerais in Brazil and Merida and Bolivar in Venezuela are examples of this).

At the same time, LAC governments and local administrators have done poorly in recognizing the difficulties under which teachers labor, and have refused to work cooperatively with defensively positioned teachers' unions to develop reforms which teachers can support. A major requirement of

advancing reforms has to be, in most countries of the region, overcoming a long history of conflictive relationships between the Ministry of Education and teacher unions, which has built up a thick layer of mutual mistrust. The Minas Gerais and Chilean government policies in the 1990s aimed at improving teacher's working conditions and pay as part of a focus on school improvement are models of union-government negotiations that could work elsewhere. Extensive research and policy dialogue is called for, however, before the issue of the role of teachers unions can be dealt with satisfactorily from the point of view of education reform.

2. Teacher education

Besides the critical political and social issues raised by the attitude of teachers and unions to education reform initiatives, the most common approach to teacher issues in the region is an emphasis on the urgency and priority that needs to be accorded to teacher education. Average teacher's skills and subject knowledge are considered low across the region, yet at the same time widespread dissatisfaction prevails regarding current pre-service and in-service training of the teaching force. In contrast, innovations exist but well-proven models are hard to find, raising doubts about the returns to the sometimes heavy investments in teacher training over the past years. The IDB alone has provided enough resources for the training of one out of five teacher in the region through its projects, yet there is little to show in terms of systematic evidence on the impact of such effort (Deutch and Verdisco, 1997).

In many Latin American countries, primary school teachers are not trained in universities but in specialized teacher training institutions, mainly, today, at the post-secondary level.² As might be expected, the level of primary teacher education evolves with the level of education in the population as a whole. The quality of normal school education is often low in Latin America. Most teacher education programs focus little on curriculum subject matter, such as math or literature, and mostly on traditional pedagogy and basic educational subjects from child psychology to special education. Some of these subjects are genuinely useful to prospective teachers. But the problem remains that many primary teachers in Latin America, particularly those who took their education twenty years ago, have little more than a ninth grade knowledge of mathematics and language arts. In a few countries, even younger teachers have ninth grade content knowledge. Besides its poor quality, normal education is also

generally as or more expensive than standard academic higher education in the humanities or psychology.

Reforming pre-service education does engender serious problems, for two main reasons. First, like other specialized education, schools that train teachers, be it at the secondary or higher education level, have a major constituency—the teacher-training bureaucracy and often the teachers’ unions. These schools tend to be symbols of upward mobility for low-income groups, since teaching is traditionally an occupation that attracts more academically successful students from those groups. Hence, any reform of pre-service training will need to respond to serious resistance.

Yet, it is absolutely essential to improving education that teacher pre-service education be reformed. Among the reasons are: first, the new pedagogical strategies introduced into teacher education in the highly developed countries to improve pupil learning are increasingly dependent upon a well-educated corps of teachers, who are increasingly university graduates in specific subject disciplines. Teacher education in these countries integrates learning content in science, mathematics, and the social studies together with learning flexible pedagogical skills that adapt to children’s multiple ways of learning and problem solving. Such education also emphasizes different problem-solving approaches for diverse subjects. Second, in-service training works far better with a very focused approach to goals and objectives, a coherent integration of such training with relatively high levels of subject knowledge, and an ability to apply new teaching methods and curricula within the context of high expectations and high standards. It is difficult to imagine such expectations and standards unless the teachers are seen and see themselves as intellectual leaders within the context of the school and the educational system.

The key elements of reform are an increase in subject content taught to prospective teachers and a greater emphasis on classroom management skills. They should result in principle in a more able teaching force and, if done intelligently, they should naturally lead to a reduction in normal school costs. Historically, the first of these reforms has been attempted by raising teacher educational requirements from secondary-level to tertiary-level normal education. But such a reform does not fully address the issue. Teachers’ subject knowledge does increase, but in an inefficient way: low quality, expensive secondary-level teacher education turns into low-quality, expensive tertiary-level teacher education. We will return to this issue.

Such a reform could have benefits beyond better teacher classroom training. It is cheaper than actual teacher education because it shifts a significant portion of training out of teacher-training colleges, and focuses in-college training on academic content rather than specialized “vocational” courses. It also provides financial and status incentives for experienced teachers to become “masters.” By developing standards for master teachers, countries also need to define “good” teaching. Further, if master teachers are selected by principals, peers, and parents, the conception of good teaching spreads to other teachers and the community.

All this assumes that there are at least some experienced teachers in each country who have achieved excellence despite poor pre-service training and low standards. Yet most teachers in Latin America have been poorly trained and are already in the system. Improving pre-service education does not affect them. They need good in-service training. Studies

BOX 2. Models for teacher education

One possible direction to go on teacher pre-service training, particularly in those countries that have secondary-level normal schools for training primary teachers, is to convert them into intensive two- or three-year academic training programs, including higher-secondary math and language arts courses and child development courses. This could be followed by one year of “apprenticeship” in a school with a “master teacher,” who is provided extra pay for taking on the training task. The apprenticeship could be combined with short in-service training courses that focus on problems of practice and discussions with other apprentices and master teachers. The majority of Latin American countries might do the same conversion at the tertiary-level, further eliminating separate normal education at the tertiary level altogether and preparing teachers through regular university courses plus a one-year apprenticeship in schools combined with short-training workshops.

A system like this would make it possible for any new university graduate hire -in any discipline, not necessarily in “education” as a university discipline- to learn to teach as a classroom apprentice with a “master.” This concept is similar to the German system used in vocational training, where young secondary school graduates train in firms with experienced workers and attend vocational education courses a few days a month (Bock and Timmerman, 1995). What better way to learn to be a good teacher? The master, in turn, would be paid a higher salary for being a master and would be responsible for teaching the new recruit the essentials of good teaching, integrating theory with practice, and evaluating the recruit’s progress. In the best of situations, the apprentice and master would develop a creative, innovative relationship benefiting both them, the other teachers in the school, and the pupils. Such a training system could, in the end -for a good reason- replace entirely the current system of pre-service teacher training. It would work only if the more highly paid master teachers could do as good or better job than traditional teacher training courses in unifying specific subject matter with teaching methods sensitive to differing learning styles. The cost saving from shifting to on-the-job teacher education could be large.

The Cincinnati school district has implemented such a reform with excellent results (see *Time Magazine*, May 26, 1995). The key to the reform is that the pedagogical training portion of teacher education is shifted into the field and is directly supervised by a teacher identified as a good pedagogue. Currently, young teachers in most countries do a stint in the classroom (student teaching) as part of their teacher education, but it is not directly supervised by a "master," as in other trades. Indeed, there is usually very little supervision of student-teaching, so it is more like "practice" rather than an "apprenticeship."

As a matter of fact, in Latin America training of teachers in real-classroom environments is more of a tradition lost than a true innovation. In many countries older teachers will tell stories about being originally trained for the profession in a highly practice-oriented setting, with intensive tutoring by experienced teachers and early exposure to real-classroom conditions in their pre-service years. Several factors conspired to interrupt this auspicious beginning in teacher training: massification, growing isolation between higher education institutions and the daily workings of the schools, political intervention of teacher recruitment and career management, among others.

have shown that where teachers receive more in-service training students achieve at a higher level (Lockheed and Verspoor, 1991). But in-service training is generally quite poor even in the United States, where massive funds are available for it. It tends to be used to teach teachers the latest pedagogical fad or the latest curriculum reform rather than for helping teachers improve teaching in their classrooms based on an assessment of what they need to become better teachers.

Often, even though by no means necessarily, if teachers are using only chalk and talk and drill and practice, general in-service training helps shift them into more "constructivist" approaches. However, it is one thing to provide in-service training and another to have new teaching methods implemented at the classroom level. In-service training needs to be part of a system of *implementation* of better teaching. This requires mechanisms that link in-service training to classroom practices. The essential element of such linkage is a commitment from the top (central Ministry) to the bottom (principal) of the administrative hierarchy to improved teaching, and the allocation of administrative effort to back up that commitment (Elmore, 1997). One way to measure this commitment is to observe how much time administrators at different levels in the system spend working with teachers on their classroom practice. In most Latin American countries, regions, states, municipalities, and schools, that amount of time would be essentially zero. No amount of reform rhetoric can improve teaching practice, hence student learning, in the face of this reality.

The Escuela Nueva in Colombia has long used in-service training in *minicentros* as an integral part of improving rural multigrade education. A key element in Chile's successful P-900 program, aimed at the country's lowest performing schools is teacher in-service training

conducted in local area workshops and special summer programs (Cox, 1997). Similar strategies have been successfully tried in teacher-support circles in Central American countries. In these cases, the main reason for the success of teacher training in impacting student performance is that training is directly linked to a focus in the reform of the *specific classroom practice* also supported by other materials and, in the best of cases, systematic supervision. Furthermore, at least in the Chilean reform, improved classroom practice and student performance has been rewarded by higher teacher salaries and other teacher-focused incentives, such as scholarships for workshops abroad and, more recently, bonuses for schools that make consistent performance gains on the SIMCE test. Such *focused* and *linked* teacher in-service training has to be distinguished from teacher in-service in most countries (including many instances in the United States) that is usually not linked directly to school improvement programs and is therefore often never implemented in classrooms.

3. TEACHERS' CAREERS AND INCENTIVES

Training, however, is only one factor that influences teacher performance. Others such as the role of supervision, incentives, accountability, and, more generally, career regulations and mechanisms for the recruitment, selection and promotion of teachers are increasingly receiving attention throughout the region. Governments have so far not focused sufficiently on the self-image of the teacher and the status of teaching as a profession. Yet, along with the rapid quantitative expansion of the teaching force in most countries over the last couple of decades, there is a general dissatisfaction with the average quality of the teaching force. Many countries in the region report increasing difficulty for recruiting young people into teaching despite and, in some cases, of high levels of unemployment. As an example, the number of first year teacher education students in Argentina has declined, and is increasingly drawn from high school graduates who have failed in pursuing other careers (Braslavsky, 1995).

Raising the formal education requirements for the teaching profession, already discussed in the context of pre-service training policies, has also been a common response to concerns about prestige and pay. But international experience hardly justifies enthusiasm about this as an effective solution to the problem (Hanushek, 1986; Murnane, 1991). Making it more difficult to enter into a profession that continues to be less attractive than others will hardly improve the chances of getting a better pool of candidates for teacher training colleges or teaching positions.

One of the major problems in attracting better qualified candidates and professionals to teaching and, more generally in gaining teachers' support for reform, has been the pressure put by many Latin American governments on teacher salaries as part of their financial structural adjustment efforts in the 1980s and now in the 1990s. For example, teachers suffered substantial salary losses in Argentina (1985-1990), Chile (1983-1990), Costa Rica (1980-1989), El Salvador (1980-1990), Mexico (1983-1992), and Nicaragua (1985-1993). In some, such as Argentina and Mexico, real salaries are still far below their 1980 levels, making teachers much more resistant to implementing reforms than in Chile, for example, where rapid salary increases after 1990 are part of the general drive to improve teacher working conditions. Discussions of this critical issue should, however, be informed by extensive detailed research of each nation (see Box 3).

Thus, in the long run, there is little dispute that a more qualified teaching force will require higher starting salaries (in the US state of Connecticut, for example, sharply raising starting teacher salaries has raised the average SAT scores of teaching recruits by 100 points) and improved teaching working environment, especially in those schools in the worst conditions. It is difficult to recruit qualified individuals into teaching when class sizes are large, physical facilities run down, and even rudimentary teaching supplies are unavailable. In addition, certification processes -today unnecessarily onerous largely due to union pressure- will have to be reformed.

Such difficulties in the recruitment of qualified teachers may mean that teachers in the region should increasingly be drawn from university graduates in disciplines other than teaching, who can then be trained in the specific art of teaching through one-year (or less) teaching certification courses supplemented by in-service courses (see Box 4). In other words, it may make more sense to define teaching professionals by those who teach (a job definition) rather than those who are trained in teacher training institutions (an vocational training definition). This also suggests that university-trained professionals in other fields who want to become teachers can become certified through a relatively short certification process supplemented by in-service courses. The more such university graduates enter teaching, the more in-service courses make sense, since they are *practice-focused* rather than knowledge focused.

In the shorter run, on the other hand, limited but so far consistent evidence indicates that institutional contexts and incentives can make a difference in the productivity of teach-

ing (Savedoff, 1998; Hanushek and Jorgenson, 1996). The same teachers have been observed to behave differently under various labor regimes and school climates (Navarro and De La Cruz, 1998). The introduction of accountability mechanisms, empowering teachers, directors and communities, can influence teacher attendance, teacher's concern for seeking relevant training -as opposed to formalistic certification- and generally improving performance. Pay for performance arrangements, for all their implementation difficulties, are at least being tried on an experimental basis in some countries. This has mostly been done as a group rather than individual incentive, as in the cases of Chile and Uruguay. Increasingly, innovations in school management and supervision have been attracting attention and are subject to widespread dissemi-

BOX 3. The facts on teacher salaries

One element of developing a constructive approach to discussions with teachers is to have accurate estimates of teacher salaries relative to others with the same education. Such estimates are important not only in dealing with unions, but in developing coherent teacher recruitment policies. Almost every country in Latin America has income, education, and age data available from household surveys, often for a number of years beginning in the 1980s. These allow estimates of age-income profiles for male and female secondary school and university graduates groups comparable to teachers.

In Honduras, for example, comparisons of such age-income profiles with teacher salary schedules suggest that although real teacher salaries fell in the 1990s, both male and female primary school teachers still earn more than their secondary school graduate counterparts, but that secondary school teachers (especially males) now tend to earn less than university graduates in other professions (Camoy and McEwan, 1997). This explains the large surplus of primary school teachers and the growing tightness in the labor market for secondary school teachers. The comparison also suggests that the Ministry of Education could demand much more from primary school teachers in negotiating reforms, but needs to be concerned about future recruitment of secondary school teachers as it expands that level of schooling. City-by-city salary comparisons in Brazil for 1995 indicate that both primary and secondary school teachers earn approximately the same as their same-education counterparts in the rest of the labor force. This also seems to be the case for Bolivia (Savedoff and Piras, 1998). For 1995, the household survey shows that teachers received salaries equivalent to workers with equivalent characteristics in the labor force. An interesting open question arising from research results as those reported would be whether Latin American countries should be willing to pay salaries above market-clearing levels in order to get the kind of teachers that they want. Findings like these should constitute the beginning of a better informed public discussion about teacher pay.

nation. Some countries are already discussing the convenience of tackling the need for a comprehensive reorganization of teachers' careers.

C. DECENTRALIZATION AND SCHOOL AUTONOMY

The most popular type of reform in the region in the 1980s and the early 1990s has been the attempt to reduce the central government's role in education by means of a decentralization of educational decision-making (management) and, to a lesser extent, educational finance. This type of reform was implemented in several Latin American countries in the 1980s (most forcefully in Argentina and Chile, but also in 1989 in Colombia), and is now spreading almost everywhere else (for example, El Salvador, Mexico, Nicaragua, Peru and Venezuela)³.

The primary intellectual rationale behind such reforms is to give more control over decision making to local governments and schools as a way of increasing innovation and response to pupil needs. Given more local management and financial decision-making at the school site, it is reasoned, parents will increase participation and schoolteachers and administrators will increase quality, both by improving teaching and by using resources more efficiently.

The logic of this argument is easy to understand. Latin American educational systems have historically, with few exceptions, been highly controlled from central ministries. Key decisions about who teaches, how and when teachers are rewarded, what they teach, and school management objectives are taken away from local decision-makers who are most aware of student and community needs. This is often coupled with the lack of capacity in the central ministry to monitor the actual functioning of the schools. Central government bureaucrats rarely know whether classes are actually taking place or what students are learning. School inspectors, allegedly the monitors of educational standards, are often corrupt and unprofessional, or merely check the most formalistic dimensions of instructional practices. So the central ministry (and its inspectorate) is better at repressing change and innovation than it is at operating the system for steady improvement. This is a terrible combination. Decentralization reforms are therefore generally justified as part of an attempt at correcting repressive, incompetent centralism.

At the same time, education reform efforts that emphasize school autonomy are multiplying all over the region (see Box 5). The terms 'decentralization' and 'school autonomy' are often confounded. One does not necessarily imply the other — a decentralized system can have schools that have no control over choosing inputs, budgeting, etc. The relationships between these social processes need to be disentangled in the discussion of specific cases, and when making policy prescriptions.

BOX 4. Rethinking teacher certification

Most Latin American countries make no distinction between getting certification to teach and graduating from a teacher education program at the high school or tertiary level. Once you become a graduate, you automatically become eligible to teach. But it is very difficult if not legally prohibited to teach unless a candidate is willing to pass through such a lengthy process. In an arrangement like this, accountability and competitive pressures on both individuals and schools of education become almost non-existent. And the process of becoming a teacher is often long and demanding: it takes anywhere from two to five years, no matter what other qualifications you may have.

A more logical and inspiring alternative could be to separate graduation from certification. This would allow graduates from many disciplines other than “education” to apply for a license to teach, and it would most likely create competitive pressures for education schools to produce graduates able to pass the certification exam regularly. The supply of teachers, particularly in disciplines that today experience severe shortages in most countries in the region, like mathematics and foreign languages, would expand, and specialized education schools would naturally develop shorter courses aimed at providing professionals with diverse disciplinary backgrounds with the required tools for teaching.

But school autonomy should remain the focus of reform efforts, with decentralization as a supporting tool, wherever relevant. The goal is not necessarily decentralization, per se, to a lower administrative unit, but providing more autonomy and choice to school officials. This autonomy allows them to best respond to their own institutional challenges and have a more active role in serving the final stakeholders of the educational process — students and their parents, who in the end are the users who can best hold the system accountable for delivering promised results. Still, in the relatively common highly centralized context in which schools operate in the region, counterbalancing bureaucratic blockage of the central government on educational initiative can be a valuable contribution of decentralization processes, for all their risks.

Decentralization of education, at the same time, may have to be considered in the larger context of political and administrative decentralization, advancing in several countries in the region, and as such can be strengthened by wider trends favoring increased participation, citizen involvement and responsive local authorities. In such contexts, decentralizing education could play the role of a tool for reform by liberating local initiatives, channeling additional funds originated in local sources, engaging new stakeholder or debilitating interest groups born out of the excesses of centralism. That has a value in and of itself, regardless of

whether, in the end, the educational system acquires a more or less decentralized structure.

As is customary in dealing with this issue, it has to be kept in mind that decentralization is no panacea. Brazil's primary and secondary education was historically highly decentralized to states and municipalities, with no obvious impact on quality, but considerable impact on inequality and politicization of resource allocation (Amadeo et.al., 1994)⁴. In the US, decentralized state systems, such as Iowa's, produce very high levels of student performance, while other decentralized state systems do not. A particularly troubling fact is that some of the decentralization reforms do not have their origins in the desire to increase school productivity, but in the need to reduce central government financial and management responsibility for primary and secondary education in the context of fiscal adjustment. The Colombian experience in the late 1980s and early 1990s is a case in point (see Carnoy and Castro, 1997). There, municipalities opposed the decentralization reform and rewrote the legislation because they realized that they would have to bear much more of the cost of education than in the past. Similarly, in Argentina (1978 and 1991), Chile (1980) and Mexico (1991), decentralization reforms had strong elements of devolving management and financial responsibility to the provinces, municipalities, and states mainly because the central governments wanted to see these sub-jurisdictions bear a greater share of educational costs. The experience with this finance-driven version of decentralization suggests strongly that decentralization with slower growth in or reduced financial and technical assistance from the central government to local- and state-run schools may achieve financial goals but tends to increase inequality in educational performance between the poorer states (municipalities) and the richer ones. Countries that have gone through that experience, such as Chile and, in a certain historical sense, Brazil, are now expanding central and state government help to municipalities and, in Chile's case, recentralizing educational improvement efforts. Curiously enough, political and administrative decentralization processes can lead to innovation and some significant growth in the resources devoted to public education as a result of growing concerns for education among local constituencies, even in the absence of nationally defined reform initiatives, as the Venezuelan case shows (Navarro, 1998). Yet, to the extent that education has components of a local public good, it is to be expected that, once the dust of reform settles in Latin America, local and regional governments will play a larger role in the financing of education than they used to play until the eighties.

In balance, the Latin American experience suggests that decentralization and school autonomy can play an important role in educational improvement at the local level. They should be encouraged, but generally under conditions where educational spending and central (or state,

in those states that have such expertise) government technical expertise are increased, especially to poor localities and low-income schools that have less of their own financial and technical/human resources to undertake educational improvements.

The key is thus to conceive and carry out a process of “intentional decentralization” with built-in incentives for promoting innovations and rewarding improved performance, which entails a newly strengthened center or centers. A clear emphasis on reinforcing management capabilities and community participation at the school level should go hand in hand with projects for the well understood strengthening of central

BOX 5. Community involvement and school autonomy: a regional trend

As of today, school autonomy constitutes a regional trend worth encouraging, and there is no shortage of innovations in school autonomy waiting for evaluation and policy-oriented reflection: e.g. Nicaragua, El Salvador, Brazil, Colombia, Argentina, Venezuela - among others - the list goes on. Community participation is a common denominator in all of them. Some outstanding experiences:

- At the state level in Brazil, new initiatives, such as those in Minas Gerais and Parana, are improving education and reducing educational inequality with a combination of school autonomy and state government evaluation, technical assistance, and increased spending on salaries and materials. The most interesting feature of the Minas Gerais reform is its multi-pronged approach. It simultaneously tried to (i) increase the autonomy of the schools; (ii) transfer financial resources directly to the control of school principals; (iii) create school boards with active parent participation; (iv) have principals chosen by school boards, among candidates pre-screened through an examination; (v) create teacher training programs managed by the schools; and (vi) establish a state-wide evaluation of schools via a student testing program
- A principal component of El Salvador’s government education strategy has been EDUCO (Educación con Participación de la Comunidad). Management of targeted schools in poor rural areas has been transferred to communities. Funds are transferred by the Education Ministry to ACEs (Asociaciones Comunales para la Educación)—local school committees that are held responsible for key school management functions such as hiring and dismissal of teachers, maintenance and supply, negotiation with government and international agency programs to obtain additional funds for school improvements. The Ministry intends to extend this program to cover more regions in the country, as it constitutes the centerpiece of the government’s decentralization strategy (World Bank, 1994; MinEd., 1997).

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- In 1993, Nicaragua started granting considerable autonomy to schools, beginning with mainly the secondary schools. Schools are run by a Council where the principal, teachers and parents are represented. The Council signs a contract with the Ministry of Education according to which schools receive considerable power in managing budget allocations, raising additional funds, establishing curricular and extracurricular programs and hiring and firing of the principal. The director in turn has authority to hire and fire teachers, although a teacher's pay and benefits are regulated by nationally agreed laws and contracts. The Ministry retains authority over general norms and standards, as well as the core curriculum. According to a school survey, directors, council members and teachers feel that the school has more control over the management of resources, both human and financial, the dominant impression is that the reform has improved student academic performance, teacher's attendance and parental involvement (World Bank, 1996). There seems to be evidence that there has been indeed an improvement in the efficiency in the use of resources within schools (Gershberg, 1997).

Ministries. The preconditions for success in a well organized education system require a lean, strong and clearly defined central level which supports effective schools in as efficient a manner as possible: norm-setting, policy analysis and design, information production and dissemination and program and performance evaluations should occupy most of the legitimate space allocated to national ministries of education. There will be proper roles for middle layers of government in administratively decentralized countries, but diversity to this respect across the region suggests tailoring specific interventions according to the institutional history and structure of each country.

D. EDUCATIONAL TECHNOLOGY

Technology has long been advocated as the cure for poor education. Beyond simple aids, such as blackboards and overhead projectors, technology has had little impact on teaching (Cuban, 1989). Despite vast literature promoting more expensive and complex technologies such as educational television or computers, there is little evidence that they are cost-effective in improving student performance in a school setting (Carnoy and Levin, 1975; Levin, Glass, and Meister, 1986). The stronger case for investing in educational technology today is in distance learning. A method to extend education to populations costly to reach by conventional schooling or for training groups in specific skills, where a well-qualified instructor in a central location can teach large numbers of students or workers in specialized tasks, including teaching itself. If this is done, the reach of reasonably high quality

education and training can be extended to populations who otherwise would remain with weaker quality education or none at all.

Few doubt that technology can play an important role in education and training. Radio and television have long been used for educational purposes. Entertaining children's programs such as *Sesame Street* are known to impact reading and numeric skills. Even more formal educational radio and television has been shown to be effective in classroom settings *when used properly* by school staff (Jamison et al, 1981). Nevertheless, the status of computers and related technologies is not so clear. They introduce new ways to process and store information and impact the speed of communication among individuals at great distance. They also present alternative systems for learning. Rigorous evaluations suggest that computers can have a significant effect on classroom learning (Levin, Glass, and Meister, 1986). Drill and practice programs, tutorial programs, a host of commercially available learning games, LOGO, and computer simulations and animation used to explain scientific principals, and even word processing, with its built-in spell check and thesaurus programs, can all be shown effective in improving student learning. The advent of Internet provides another popular form of data gathering for research and access to a wealth of information. So the possibilities seem great for computers as a new tool for learning.

The main problem lies in the explicit and implicit costs of this technology, not just for Latin American educational budgets, but also in US, European, and Asian schools. Educational television was pushed in the 1970s as a way to improve classroom learning, using lectures by expert teachers broadcast from central facilities to supplement teaching at the school. But this proved to be an expensive add-on. The TVs were often used sporadically, or broke down and were not fixed for lack of parts and maintenance personnel. It has taken a couple of decades to assess the complexities of TV use in the classroom and to clarify the particular applications and niches that are most likely to be appropriate in different contexts. Computers themselves are no longer especially expensive. But by the time other fixed costs, such as rewiring, peripherals, and initial software, are included, a computer package for a school that allows students adequate time during the week to use it (approximately one computer per five or six students), could initially cost a school with 400 students about \$100,000-\$150,000, or about \$300 per student. This includes neither teacher training to make all teachers in the school familiar enough with computer technology to integrate computer use into their teaching, nor the variable costs associated with computers, such as a full-time computer teacher, computer maintenance, and annual spending on software. In the US, these latter costs represent a high

BOX 6. Private schools and performance

An example that is used increasingly to illustrate the benefits of school autonomy is private schooling. In almost any country, private schools, even when subsidized with public funding, can allocate resources and vary their educational delivery with much greater freedom than public schools. Hence, it is argued, by allowing public schools the same kind of autonomy as private schools, and by allowing private schools to compete with public schools for students by providing government funding to all schools more or less equally per student (vouchers), all schools will have the incentive and the possibility to become as attractive as possible and as cost-effective as possible. But even without the subsidized private school component, public school autonomy should lead to significant improvements in educational delivery. Simply making teachers and school administrators more directly responsible for their pupils' performance and allowing them to implement the changes needed to accomplish this goal, should lead directly to higher quality education.

The literature on the advantages of private schooling relative to traditionally organized -meaning, non-autonomous- public schools, and on the sources of those advantages is highly controversial. Extensive research has established that improved learning is strongly associated at school level with clear school goals, rigorous academic standards, orderly environment, strong leadership, high participation of both teachers and parents and high expectations for student performance. However, the issue revolves mainly not so much around what makes a school effective, but rather about how the school-level decision making and organizational traits typical of most private schools make them more able to produce such desirable features. Chubb and Moe (1990) argued forcefully that this was precisely the case, and the spread of experiments with charter schools all over the United States -schools that are publicly financed but privately managed- seem to indicate a lively interest in policy circles with respect to these ideas.

In Latin America, the experience with publicly subsidized Catholic schools for low income children in Venezuela seems to support the view that the organization of private schools can make a difference in efficiency and learning. This is judged from the findings of preliminary research done on the performance of students at Fe y Alegría schools (Navarro y De la Cruz, 1998). The most extensively researched regional case, the Chilean private subsidized schools made possible by the voucher scheme adopted in that country, has yet to produce a conclusive endorsement of the advantages of autonomy for academic performance. Early research clearly indicated that such was the case (Aedo and Larrañaga, 1994), but other contributions are far less clear-cut in this regard (Carnoy and McEwan, 1997). This despite the widely recognized fact that many private schools are well administered and many are more cost-effective than public schools (Winkler and Rounds, 1996). More research is needed in on the costs, effectiveness and organization of private schools.

percentage of the total (Levin, Glass, and Meister, 1986). In Latin America, where computer specialists, maintenance personnel, and educational software in Spanish and Portuguese are relatively expensive, omitting their cost seriously underestimates the total expense for an effective computer education add-on in a school. Equally important, the potential of computers to develop higher order cognitive skills requires the kind of teachers who know how to develop those skills in pupils without the use of computers, and these are precisely the teachers that are relatively scarce in most countries.

No wonder, then, that in almost all schools that have computers in Latin America (and in the US), the technology is largely symbolic. It is just too expensive to do more. Students have access to relatively few machines with text editing or some educational software for less than one-half hour per week. The teacher trained to teach children cognitive skills has limited familiarity with computer possibilities. The computers break down and take weeks to fix. The other teachers in the school do not integrate computer use into their own teaching because they have not been trained to do it. At best, therefore, the main effect is to familiarize students with the technology itself. Indeed, that is what most parents expect from putting computers in schools.

So until now, it is unclear how computers can be used to teach math and language more *cost-effectively* in schools than better traditional written materials, better pedagogy, or other alternatives such as peer-tutoring. Until information technologies can be integrated into the life of the classroom to complement and improve teaching at a relatively low cost, they will simply be expensive add-ons.⁵

The greatest promise of technologies such as television, radio and eventually computers, resides in *extending* schooling to more difficult-to-reach communities or post-school; working populations through distance learning (at a lower unit cost per pupil than trying to reach such students with conventional schooling); or in training young people and established workers in specific skills, including much sought-after computer skills. To date, Latin America's record in the use of radio and television for distance education and training is impressive. Evaluations of experiments with interactive radio in Nicaragua and Bolivia demonstrate it to be highly cost-effective. Mexico has been operating its Telesecundaria for many years, with many million graduates. For these mainly rural students, Telesecundaria was the only way to attend secondary school. The Tecnológico de Monterrey, in Mexico, has had great success beaming technical and management courses through television to students in many states. Brazil's Globo Network and its predecessor, Telecurso, has educated millions of the country's poor, who

otherwise would not have access to secondary education. Its new version, Telecurso 2000 now offers a GED-type program for young adults, using commercial television-style programming and supplemental written materials. Fe y Alegría reaches thousands of students through a highly effective radio-instruction program in Venezuela. And in all countries, computers have been used successfully at all levels of education to teach individuals computer skills. But in all cases, policy-makers need to keep in mind that distance education and direct skill training require legitimating instruments, such as competency or equivalency exams, as those being used in Brazil, to translate the cognitive and production skills acquired in these courses into higher income for graduates. Otherwise, the gains have been shown to be relatively low.⁶

As far as the use of computers in primary and secondary education is concerned, then, this paper contends that, at present, this is not a cost-effective tool. However, it is strongly recommended that most countries conduct limited experiments and pilot programs aimed at becoming acquainted with the technology and at preparing a group of people that can deal creatively with them. Two reasons justify this apparently contradictory position. First, the costs are going down as the educational potential of the tools go up. Eventually, information technology will become cost-effective. Second, the real challenge consists of bringing computers to help in learning contexts (rather than learning how to use computers). Past experience indicates that this is a difficult and time consuming path, and one that has more to do with school reform than with technology as such. Hence the need to start early in the development of controlled experiments.

To summarize, Latin America should focus its efforts less on uses of technology that tries to reach beyond what is possible with good quality conventional education and, instead, should concentrate on uses of technology that compensate for the low quality or inaccessibility of education for hard-to-reach low-income populations. Rich countries have varied their use of new technology. Singapore and the US at one extreme, invest heavily in computer-assisted instruction even at the primary-level. Japan and Germany at the other, invest in relatively few computers in primary school and put much more focus on computers for teaching computer skills at the secondary level. Latin America should take a page from Japan's strategy, emphasizing improved instruction at the primary level through high quality classroom teaching and high quality materials, while advancing pilot experiences in the introduction of computers. At the same time, countries in the region should use its own strengths in distance learning to reach more of its low-income populations with high quality television and radio education.

PART III. TOOLS FOR NAVIGATING AND MANAGING THE SYSTEM

In dealing with reform, Latin American countries have been using, most of the time, a set of three instruments: financing arrangements, quantitative indicators and statistics, and evaluation, understood as student assessment. These three are powerful tools both technically –because they redefine issues and widen understanding- and politically –because they provide information to stakeholders, help in reviewing priorities and create incentives for actors to behave in ways consistent with the goals of reform.

A. EDUCATION FINANCING: MORE RESOURCES, BETTER USED

Government spending on education represents a major investment subsidy that has a high payoff for the young people who receive educational services. So who gets these services and who pays for them is of considerable consequence, economically and politically. Education is also the largest source of professional employment in every country in the region and in most regions and localities in most countries. School finance—how funds are raised and how they are spent—determines the distribution of this valuable subsidy.

Swift advancement on all the challenging fronts outlined in this paper will have substantial financial requirements. On average the region puts more or less what would be expected in education as a proportion of GDP (see Table 2). But this average masks wide variations, with the English speaking Caribbean countries well above and quite a few other countries both in Central and South America well below of what would be considered acceptable. Countries that were severely hit by the crisis of the eighties have not, by the late nineties, recovered the per capita levels of public spending reached twenty years ago but most of them are clearly making substantial efforts at reestablishing minimally adequate funding⁷.

Deeply rooted distortions and problems persist in education finance in the region, to the point that a substantial increase in funding for the education sector under the status quo (under current rules for budget distribution and use) runs into a severe risk of being misallocated. As an illustration, the way things are now, education systems are structurally set up to assign any increase in public financing to teacher's salaries, leaving other key inputs --textbooks, school supplies— chronically underfunded (Arcia, Alvarez and Scobie, 1998). This may

create serious consequences for the way multilateral projects are designed in the education sector. Absent is a system-wide assessment of education finance, calling into question the sustainability of projects and the overall soundness of the policies encouraged. Building on the previous illustration, lending for textbooks, maintenance or school supplies, no matter how justified in the short term, may reinforce misguided spending patterns by allowing countries to buy time for unsustainable financing arrangements for the sector.

Many ministries and secretaries of education have too little knowledge about actual total spending on education over time and about how much is spent on various educational activities (primary versus secondary versus university, teacher salaries versus materials or building maintenance, for example). Measuring total spending is made much more complicated in countries where educational spending is controlled in part or in whole by provinces, states, or municipalities. In Argentina the central government gives block grants to the provinces to provide social services, primarily health and education, and the provinces are responsible for educational spending on primary and secondary schooling. A major undertaking for national Ministries (Economy and Education) has been collecting data on provincial spending and charting spending over time. Only with such information can the Ministry of Education get a clear picture, for example, of changes in the amount of resources available to the school-age population in richer and poorer provinces.

There is much more at stake in all this than simple resource availability. Widespread evidence shows that education systems in most countries in the region experience severe wastage of resources. The total amount of resources invested by the Bank over three decades of educational lending to the region compares to estimates of resources lost in one single year due to high repetition rates in the same countries. A phenomenon, which is not exclusively, but to a large extent related to low performing educational institutions. Much could be gained by a significant improvement in management practices -from the Ministry to the school level-, and by setting labor and budgetary incentives in ways conducive to efficiency (IDB, 1996).

Such distortions in the way education resources are managed have not only efficiency but equity consequences. Students of relatively high socioeconomic background get medical degrees free of charge while students from poor families are prevented from pursuing university degrees out of lack of financial aid. Rural education, which has little voice and

votes, get systematically less when the pie is cut. Public education is abandoned by upper and middle classes that have the potential of a strong voice, contributing to widening the gap in the quality of education received by the privileged few and the general population. The list goes on.

Thus, financing turns rapidly into an incentives and accountability issue. Why would communities try to influence the use of resources in schools or school systems when they have little if any information and decision power? Why should a public university or, more generally, any public school, become cost-conscious or think about diversifying its sources of financial support if the government will keep financing it fully year after year, no questions asked? Why should a teacher care about putting a little more effort and interest in doing his or her job if, whatever the performance, recognition, career prospects and pay are not affected by them? Why should a school director become active in managing schools resources if such resources are spent directly from a remote center and he never manages any resource other than his or her own salary?

In sum, be it on quality, equity or efficiency grounds, financing arrangements are now generally recognized to be closely associated with patterns of resource use. If education finance is put right, significant resources will be liberated to be spent in underfunded areas and, at the same time, whatever the amount of resources available, it will be better used⁸.

The recent trend to consider education not only a governmental but rather a society-wide public responsibility allows for new financing arrangements that may take into account the leveraging of private resources for education and the move from supply/side subsidization to demand/side subsidization, as in recent experiments in Colombia. Actually, private spending on education is a major component of total educational spending in practically all Latin American countries. Traditionally, most private spending has been "hidden" in the form of family expenditures on uniforms, school supplies, books, "voluntary" contributions to schools through parent organizations, transportation, and, in secondary schools, support of children from rural areas and small villages living in the home of friends and relatives in larger towns. In some countries, such as Chile, direct tuition payments and cash contributions to private schools are a significant portion of total educational spending at primary and secondary levels. In lower-income countries, such as Nicaragua, and in the lower-income parts of Brazil, where public secondary education is

still relatively limited, private tuition payments to secondary schools can also be a large fraction of total spending at that level. Relatively little is known about the private contribution to total educational spending beyond the fact that it may be large⁹ and that it can impact whether and where parents send their children to school. The positive development on this front comes from the realization that, when dealt with explicitly and in the context of an appropriate policy framework, private contributions will not replace but can considerably leverage the volume and effectiveness of public spending in education.

Finally, one important demographic factor—declining birth rates in many countries— may play a role in easing the pressure on public spending for expanding lower levels of schooling and should allow governments to focus more on raising the quality of primary education. When combined with higher economic growth rates, this is precisely the factor that has allowed a country such as Chile to focus on putting more resources into improving basic schooling, especially into those schools catering to the lowest income groups. At the same time, it is often more logical, on equity grounds, to make higher education more “self-sustaining” by charging students fees. However, as education systems expand, countries should also expect to have to spend considerably more public resources on higher levels of schooling, first secondary and then tertiary.

B. THE IMPORTANCE OF EDUCATIONAL INDICATORS AND ACCURATELY ASSESSED STUDENT FLOWS

Education statistics in Latin America and the Caribbean leave much to be desired. Information about what is really happening in all aspects of an education system (finance, performance, enrollments) is an essential tool for policy-making, yet it is only exceptionally available. A recent review of state of the art education statistics in the region concluded that in spite of some progress in a few countries, severe problems persist with both technical (lack of key data, inconsistencies in definitions) and institutional aspects (low utilization, little comparability among countries and sometimes among provinces or states in the same nation) (McMeekin, 1998).

A particularly recurrent problem is the incorrect measurement of student flows. One of the keys to educational planning is knowing how many students are actually in each grade in school and how they move from grade to grade, and understanding the dynamics of failure to enroll, repetition, and dropouts. Analysts in many Latin American countries regularly tended to misestimate the *stock* of students (the total number of students in each grade and in each level of schooling in any year) and student *flows* (the number of students

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| Table 2. Education Policy and Resources: Comparative Statistics | | | | | | | | | | |
|--|---------------------------------|-----|-----------------------------|-------------------------------|------------------------------|--------------------|-----------------------------|-------------------------|-----|-----|
| Country | Public Expenditure on Education | | Expenditure per Student | | | | Primary Pupil-Teacher Ratio | Duration of Primary Ed. | | |
| | % of GNP | | Primary % of GNP per Capita | Secondary % of GNP per Capita | Tertiary % of GNP per Capita | Pupils per Teacher | | | Yrs | |
| LATIN AMERICA AND THE CARIBBEAN | | | | | | | | | | |
| | '80 | '95 | '80 | '94 | '80 | '95 | '80 | '95 | '95 | '95 |
| Argentina | 2.7 | 4.5 | 6.5 | 16.2 | -- | 12.0 | 10.4 | 17.0 | -- | 7 |
| Bolivia | 4.4 | 6.6 | 13.7 | -- | -- | 18.0 | -- | 67.0 | -- | 8 |
| Brazil | 3.6 | -- | 8.7 | -- | 11.0 | -- | 0.1 | -- | 23 | 8 |
| Chile | 4.6 | 2.9 | 9.6 | 8.5 | -- | 9.0 | -- | 21.0 | 27 | 8 |
| Colombia | 1.9 | 3.5 | 5.2 | 10.5 | -- | 11.0 | 41.1 | 29.0 | 25 | 5 |
| Costa Rica | 7.8 | 4.5 | 13.1 | 10.6 | -- | 19.0 | 76.1 | 44.0 | 31 | 6 |
| Cuba | 7.2 | -- | 10.4 | -- | -- | -- | 28.5 | -- | 14 | 6 |
| Dom. Rep. | 2.2 | 1.9 | 3.1 | 2.9 | -- | 5.0 | -- | 5.0 | 35 | 8 |
| Ecuador | 5.6 | 3.4 | 5.6 | 3.9 | -- | 15.0 | 22.3 | 34.0 | 26 | 6 |
| El Salvador | 3.9 | 2.2 | 12.4 | -- | -- | 5.0 | 103.5 | 8.0 | 28 | 9 |
| Guatemala | -- | 1.7 | 4.9 | 6.2 | -- | 5.0 | -- | 33.0 | 34 | 6 |
| Haiti | 1.5 | -- | 5.9 | -- | -- | -- | 65.3 | -- | -- | 6 |
| Honduras | 3.2 | 3.9 | 10.9 | -- | -- | 22.0 | 72.1 | 59.0 | 35 | 6 |
| Jamaica | 7.0 | 8.2 | 14.0 | 14.7 | -- | 25.0 | 166.6 | 193.0 | 37 | 6 |
| Mexico | 4.7 | 5.3 | 4.3 | 7.8 | -- | 20.0 | -- | 61.0 | 29 | 6 |
| Nicaragua | 3.4 | -- | 7.8 | 13.1 | -- | -- | 85.9 | -- | 38 | 6 |
| Panama | 4.8 | 5.2 | 12.0 | 11.7 | -- | 13.0 | 29.1 | 47.0 | -- | 6 |
| Paraguay | 1.5 | 2.9 | -- | 7.9 | -- | 11.0 | -- | 52.0 | 24 | 6 |
| Peru | 3.1 | -- | 7.2 | -- | -- | -- | 5.1 | -- | 28 | 6 |
| Trin. & Tob. | 4.0 | 4.5 | 9.2 | -- | -- | 17.0 | 55.1 | 77.0 | 25 | 7 |
| Uruguay | 2.3 | 2.8 | 9.3 | 8.3 | -- | 8.0 | -- | 28.4 | 20 | 6 |
| Venezuela | 4.4 | 5.2 | 3.0 | -- | -- | -- | 56.8 | -- | 23 | 9 |

| EUROPEAN UNION | | | | | | | | | | |
|---|-----|-----|------|------|----|------|-------|------|----|---|
| Austria | 5.6 | 5.5 | 16.1 | 18.8 | -- | 25.0 | 37.9 | 32.0 | 12 | 4 |
| Belgium | 6.1 | 5.7 | 17.8 | -- | -- | 25.0 | 34.8 | 35.0 | 12 | 6 |
| Denmark | 6.9 | 8.3 | 38.4 | -- | -- | -- | -- | 55.0 | 10 | 6 |
| Finland | 5.3 | 7.6 | 20.7 | 24.0 | -- | 30.0 | 27.8 | 46.0 | -- | 6 |
| France | 5.0 | 5.9 | 12.0 | 15.9 | -- | 26.0 | 21.8 | 24.0 | 19 | 5 |
| Germany | -- | 4.7 | -- | -- | -- | -- | -- | 35.0 | 18 | 4 |
| Ireland | -- | 6.3 | 11.5 | 14.9 | -- | 23.0 | 38.8 | 38.0 | 23 | 6 |
| Italy | -- | 4.9 | -- | 19.9 | -- | 26.0 | -- | 23.0 | 11 | 5 |
| Netherlands | 7.6 | 5.3 | 13.8 | -- | -- | 20.0 | 53.7 | 44.0 | 19 | 6 |
| Portugal | 3.8 | 5.4 | 13.5 | 17.2 | -- | 20.0 | -- | 25.0 | 12 | 6 |
| Spain | -- | 5.0 | -- | 14.1 | -- | 21.0 | -- | 18.0 | 18 | 5 |
| Sweden | 9.0 | 8.0 | 43.0 | 45.2 | -- | -- | 25.6 | 76.0 | 11 | 6 |
| United Kingdom | 5.6 | 5.5 | 16.0 | -- | -- | 22.0 | 79.7 | 44.0 | 19 | 6 |
| EAST ASIA AND PACIFIC AREA (Selected Countries) | | | | | | | | | | |
| Australia | 5.5 | 5.6 | -- | -- | -- | 29.6 | 30.0 | -- | 16 | 6 |
| China | 2.5 | 2.3 | 3.8 | 5.6 | -- | 14.0 | -- | 81.0 | 24 | 5 |
| Japan | 5.8 | 3.8 | 14.8 | -- | -- | 19.0 | 21.1 | 16.0 | 18 | 6 |
| Korea, Rep. | 3.7 | 3.7 | 10.4 | 14.7 | -- | 12.0 | 7.1 | 6.0 | 32 | 6 |
| Malaysia | 6.0 | 5.3 | 12.0 | 10.9 | -- | 22.0 | 148.6 | 77.0 | 20 | 6 |
| N. Zealand | 5.8 | 6.7 | 15.0 | 16.9 | -- | 23.0 | 33.3 | 39.0 | 18 | 6 |
| Thailand | 3.4 | 4.2 | 8.8 | -- | -- | 11.0 | -- | 25.0 | 20 | 6 |
| NORTH AMERICA | | | | | | | | | | |
| Canada | 6.9 | 7.3 | -- | -- | -- | -- | 27.9 | 36.0 | 16 | 6 |
| United States | 6.7 | 5.3 | 27.1 | -- | -- | 24.0 | 48.3 | 23.0 | 16 | 6 |

Note: International data on education are compiled by UNESCO's Division of Statistics in cooperation with national commissions for UNESCO and national statistical services. The data in the table were compiled using a UNESCO electronic database corresponding to various tables in its *Statistical Yearbook 1996*. Further, data for 1995 are from UNESCO's forthcoming *World Education Report 1998*. They are not yet available in time series but are in print in the World Bank's *World Development Indicators 1998*.

Definitions: **Public expenditure on education** is the percentage of GNP accounted for by public spending on public education plus subsidies to private education at the primary, secondary, and tertiary levels. **Expenditure on teaching materials** is the percentage of public spending on teaching materials (textbooks, books, and other scholastic supplies) to total public spending on primary or secondary education. **Primary pupil-teacher ratio** is the number of pupils enrolled in primary school divided by the number of primary school teachers (regardless of their teaching assignment). **Duration of primary education** is the minimum number of grades (years) a child is expected to cover in primary schooling.

passing from one grade to the next each year and from one level of schooling to the next)¹⁰ because there used to be relatively little understanding of these processes

Relying on a simple array of statistics on repetition, dropouts and promotion, flow analyses simulate the flow of students into, through, and out of the system. Flow analyses can provide educational planners and managers with a more dynamic and comprehensive view of the system. They identify the system's bottlenecks in terms of access and efficiency, help in providing a more precise idea of the costs involved in educating a student cohort and constitute the basis for projections of future demand¹¹.

In Latin America, student flows tend to vary greatly by educational cycle (primary, secondary), area (urban, semi-urban and rural), gender and region. The analysis of these variations is crucial to make policy decisions with the maximum impact on the equity and efficiency of the system, and this analysis only requires the breakdown of the information described above.

It is clear, however, that flow analyses can be improved with more detailed and precise information that is still seldom available in the region. The matching of the characteristics of a given group of students with the characteristics of their teachers or schools, for example, would allow for conclusions going beyond the performance of the student cohort and the analysis of aggregated statistics such as repetition and dropout rates. For more sophisticated information, a greater refinement in the collection instruments would be necessary. With such data, planners would ideally be in a position to accurately estimate not only student flows but also the extent to which entrance and dropout rates are the result of classroom/teacher availability or conditions exogenous to the educational system (poverty/economic demands on children).

C. STANDARDS AND STUDENT EVALUATION

Students in every Latin American country are evaluated annually or more often by their teachers (and their schools). These evaluations measure, on the basis of teacher- or school-designed examinations, whether a student has "learned" the prescribed curriculum. Except in those countries where there is automatic promotion, they determine whether students repeat the grade or move on to the next one. In addition to such "in-house" evaluations, some countries also

have “life-chances” tests. Some countries have these at the end of secondary school (O- and A-levels in the English Caribbean) and others, have examinations that “rank” students for entry into different kinds of universities and university departments (for example, the *vestibular* in Brazil or its equivalents in Chile and Colombia).

Although all these examinations measure student competencies in terms of curricular goals (computation, basic reading and writing skills), they are designed primarily to compare individual students with each other for the purpose of “sorting.” For example, teacher-examination evaluations are often characterized as *minimum standards* that deny promotion to students who perform inadequately. But such standards vary widely from school to school, and the fact that they are usually a function of the number of places available at the next level of schooling suggests that they act more as a sorter than as a standard. Just looking at data across countries, or across regions in the same country, it appears that the more places there are available in secondary school, for example, the lower the percentage of failures in primary school.

An increasing number of Latin American countries are adding to what is now almost universal in-school individual student evaluation with almost no diagnostic implications toward system/school assessment exams that are intended to identify poorly performing municipalities/schools and suggest directions for school improvement (see Wolff, 1998). These are given to a sample or to an entire population of students at a given level of schooling in a nation, state, province, or municipality to assess the amount of learning (against some absolute standard) taking place in schools, municipalities, states, or nations, and compare the level of student performance in a particular grade *among schools*.

Chile, which has the longest history of such examinations, originally tested a national sample of schools in 1958, again in the late 1960s and early 1970s. Beginning in 1982, with the PER exam, and then the SIMCE in 1988, Chile has tested students in the fourth and eighth grades for the past 16 years. Colombia has since 1990 sample tested third and fifth graders as a means to identifying the causes of low achievement. Costa Rica tested in the 1980s at the primary level (1986-1990), and secondary level (1988-1993), and has implemented general diagnostic testing in grades 3, 6, and 9 since 1993. Mexico has been sample testing since the 1970s, but moved more extensively into testing for policy making in 1989. Uruguay began testing nationally in the early 1990s, Argentina began sample testing in 1993, and Brazil has tested in some regions, such as Minas Gerais since the early 1990s, but has instituted national sample testing only since 1993.

Such tests enable countries or regions to assess how much of the prescribed curriculum students are learning on a school-by-school, region-by-region, and socioeconomic group-by-socioeconomic group. When applied over a period of time, they also give an indication of

whether improvement is taking place, and whether certain policies are working. For example, Chile's P-900 project, begun in May, 1990, consisted of the Ministry of Education providing educational materials, teacher training, and other student interventions to the lowest performing schools in the country. The effects could be charted by comparing the test scores of the schools that were involved in the project with other schools. Another example is that the test data available from earlier years suggest that even in the best of Latin America's education systems, quality stagnated or may have even declined in the 1980s as countries cut spending on education. Promotion rates in Costa Rican schools fell substantially, especially at the secondary level. According to data from the Ministry of Education (MINEP, 1991), after reaching highs of 88 percent promotion rates in the first cycle of primary school and 68 percent in secondary school (third cycle) in 1981, these rates fell to 80 percent and 52 percent, respectively, by 1989.¹²

Test score data from Chile also suggest that pupil performance of fourth graders declined from 1982-88, especially for low-income pupils, and although scores recovered by 1990, they remained about the same as at the beginning of the decade (Prawda, 1993; Espinola, 1993; Rounds Parry, 1994; Carnoy and McEwan, 1997).¹³

The tests also make teachers, administrators, and parents much more aware of student performance and more sensitive to the need to raise performance, especially if the scores on the tests are systematically publicized. Interviews in Chilean schools, for example, suggest that all these groups know how their school is performing on the SIMCE test, and how performance changes from test to test. Since (urban) parents in every Latin American country have some degree of choice in their children's school, publicizing test scores could influence school choice and competition among schools even in a largely public system.

In addition to national tests, a number of countries in the region have considered participating in international comparative tests, particularly the Third International Math and Science Study (TIMSS), but only Colombia and Mexico actually participated in TIMSS, and only Colombia reported scores. Among the 41 countries that reported their scores, Colombia ranked second to last, ahead of South Africa. Only 4 percent of Colombian students scored in the top 50 percent of students in the world. Chile was the only Latin American country to participate in the early rounds of the International Educational Assessment (IEA) tests, which date back to the early 1970s. Not surprisingly, Chilean students also tested far below their US and European 14 year-old counterparts in math

BOX 7. Drawing policy implications from student flow analysis

The following table reproduces the main results of flow simulations for Bolivia and Brazil. The table gives us a map of the problems that each of these two countries faces from the perspective of the duration (columns 3 and 4) and the efficiency of primary education (columns 5 to 7). The table provides us with a tool for understanding some of the challenges that these systems face and some potential policy solutions.

Although only two-thirds of the cohort in Bolivia graduates from basic education (grade 5), the system seems to be good at “picking winners”. Judging by the short average duration of studies for a graduate and by the low input-output ratio, the system tends to retain those who will graduate, the rest dropout rather quickly. Another way to see this problem is to observe that almost two-thirds of the system’s wastage is due to dropouts. These results suggest that efforts in Bolivia should be aimed at lowering the incidence of dropout in the basic cycle and giving more second chances to repeaters in order to allow them to graduate.

Low graduation is also a problem in the intermediary cycle in Bolivia (grades 6 through 8). Only 447 out of 1000 cohort members eventually graduate from grade 8. Judging by the indicators of duration and efficiency, the causes of this low graduation are similar to those affecting basic education: the average duration of studies for a grade 8 graduate in Bolivia is 9 years compared with almost 11.5 years in Brazil. Once again, “winners” are picked very early in the process by the Bolivian system. When the flow simulation finishes at the grade 8 the expected average duration of studies for a dropout is only 4.5 years.

Compared to Bolivia, Brazil has a more mature system, especially if one compares these systems at the end of the intermediate cycle. This higher maturation is achieved at a relatively high cost in terms of efficiency. On average, Brazil uses two and a half more years than the Bolivian system does to graduate students from grade 8. This lack of efficiency, however, is attributable to the fact that the Brazilian system gives more opportunities to its students, as reflected in the percentage of wastage due to repetition (two times higher than Bolivia’s). Brazilian education differs from Bolivian education in the transition from the basic cycle to the intermediate cycle. Brazil’s 8-grade cycle looks more like the basic cycle than it does to the secondary. Extending its compulsory education to grade 8 in 1971, and investing considerable resources, have put Brazil farther ahead in terms of the transition. This does not mean, however, that the authorities’ attention should be shifted entirely to the secondary level since considerable gains will come from reducing repetition wastage in the first two cycles of education.

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| (1) Case (simu- lation based on) | (2) Simu- lation endin- g at | (3) Expected number of graduates (per 1000) | (4) Expected Average duration of studies for graduates / dropouts | (5) Input- output ratio ⁽¹⁾ | (6)Wast- age due to drop- out (%) | (7) Was- tage due to rep- etition of grads (%) |
|---|--|---|---|---|--|---|
| Bol- ivia (1990 rates) | Grade 5 | 664 | 5.6 / 3.3 | 1.5 | 63.0 | 26.5 |
| | Grade 8 | 447 | 9.0 / 4.5 | 1.8 | 73.7 | 15.8 |
| | Grade 12 | 303 | 13.9 / 5.7 | 2.3 | 76.6 | 12.5 |
| Brazil (1993 rates) | Grade 4 | 845 | 6.0 / 3.5 | 1.7 | 29.4 | 75.1 |
| | Grade 8 | 582 | 11.5 / 6.2 | 2.0 | 47.4 | 30.8 |
| | Grade 11 | 410 | 17.7 / 8.2 | 2.5 | 44.3 | 27.3 |

and science. But IEA found that Chilean adolescents did better on social studies tests than teen-agers in the US and Europe. In the late 1980s, the International Educational Assessment (IEA) studied reading literacy among nine year-olds in twenty-seven of the world's countries, including Venezuela and Trinidad and Tobago. Pupils in Trinidad and Tobago did well, scoring slightly more than one-half a standard deviation below many European countries. But Venezuelan pupils scored 1.5 standard deviations below their European counterparts and were the lowest performers among the twenty-seven countries that participated (World Bank, 1993, p. 7). In the early 1990s, two cities in Brazil (Sao Paulo and Fortaleza) participated in the International Assessment of Educational Progress (IAEP) Test of Mathematics and Science. On this test, the Brazilian cities scored far below pupils from the developed countries and the Asian NICs. The top 5 percent of children in Brazil scored no higher than the average score in countries such as Korea, Taiwan, Switzerland, the (former) Soviet Union, Hungary, and France.

Another recently completed pilot study of science and mathematics achievement among thirteen year-old students suggests that of five Latin American countries (Argentina, Colombia, Costa Rica, Dominican Republic, and Venezuela), only Costa Rican students achieve average scores that are comparable with national averages in the low/mid-range of developed and Asian NIC countries (the United States and Thailand). Pupils in the other four LAC countries score far below except for those

pupils in elite private schools, a group that corresponds to less than 5 percent of the national pupil population. This is confirmed by a recent study of fourth graders' performance in seven LAC countries (OREALC, 1994). According to that study, Costa Rican students perform far better in math and language than those in Bolivia, Ecuador, and the Dominican Republic, somewhat better than those in Argentina and Chile, and about as well as those in Venezuela (OREALC, 1994). Surveys in other countries such as Uruguay also suggest that the great majority of students (those who are not in elite private schools) are learning only a small fraction of the basic minimum expected by the schools (Rama, 1992).

The great advantage of international comparisons is that they, more than national tests, provide a benchmark for educators in setting national learning goals. Unlike the present set of Latin American national and regional tests, which test only basic skills, international tests like TIMSS, allow countries to compare the effectiveness of national and local curricula in developing problem-solving skills and higher order thinking, in addition to basic skills. This can be used to compare Latin American standards with other countries' performance levels. The IDB is funding a region-wide effort on comparative testing developed by OREALC/ UNESCO, the Programa de Medición de Calidad de la Educación a Nivel Regional.

Yet, comparative testing, whether national or international, does raise the issue of how the results should be employed beyond making them available to analysts in central Ministries or in International agencies. In Chile, Costa Rica, and in Minas Gerais, test results by school are circulated both publicly and in individual schools, yet the process of disseminating information about test results has been complicated as a consequence of both political and technical difficulties. Other systems with less experience in performance assessment are starting to face similar problems.

As a rule, tests should be used not only to measure individual or school average student performance for comparative purposes and for assessing changes over time, but should include data and should be applied in a way that allows analysts to evaluate educational policies and make systematic school improvements. Further, teachers, parents, and school administrators have to consider the test instrument used as a legitimate evaluator of student learning and (by implication) teacher and school performance. And finally, in addition to making schools and parents aware that their performance is poor or good compared to other schools catering to similar student communities, teachers and administrators have to be provided opportunities to acquire more effective practices and schools need access to materials that can improve student learning. At the same time, many argue that there have to be consequences for schools that do not improve over time and rewards for those that do.

Test results need to be seen as directly linked to the application of more effective practice and teachers and administrators need to be made accountable for implementing such practices. The effective and practical implications of these incentive-based programs are far from definitely established, but intensive experimentation should be promoted and supported.

In brief, tests are the tip of the school improvement iceberg. But, since they clearly constitute one missing link in the information needs and accountability mechanisms of education systems in the region, the ongoing trend towards better testing in all countries, including countries' participation in international projects as TIMSS and IEA studies has to be understood as an important step forward from the point of view of advancing education reform.

IV. CONCLUSION: THE FUTURE OF EDUCATION REFORM

The acknowledgment of different initial conditions in different countries, as outlined at the beginning of this document, should not obscure the conclusion that a group of shared economic, political and social characteristics have led most countries in Latin America and the Caribbean to face the need for comprehensive policies aimed at lifting the performance of their educational systems. Such comprehensive policies and the social and political process needed to make them possible are the main components of what this document has described as education reform:

- A focus on reviving the school as an active sphere of management, innovation and social responsibility through increased autonomy, intense community participation and, wherever relevant, decentralization and local government involvement.
- A renewed attention paid to the role and performance of teachers, which implies innovative approaches to recruiting, training, supporting and rewarding effective teachers and making them a true partner in reform efforts.
- A prudent but intense application of the potential of technology to expand coverage and improve quality.
- And all this in the context of a sustained concern for mustering widespread social support for these and other reforms from traditional and non-traditional stakeholders alike: students, parents, teacher and educational authorities, but also NGOs, business, the media and others. Deliberate efforts at informed policy dialogue nurtured by top level educational research and dissemination of regional and international good practices should accompany education reforms at the design, implementation and evaluation stages.

In advancing such reforms, countries need to look at different tools. We have observed in action three as the most appropriate and powerful: financing -both in terms of the quantity of resources and incentive-compatible innovations in the way financing is channeled aimed at improving efficiency. Information: better statistics and enhanced awareness of bottlenecks in student flows. And testing: monitoring performance on a comparative basis such that not only students in a particular classroom, but all students and schools in a country, or even in a set of countries, can be compared for the purpose of establishing benchmarks and assessing progress along quality, equity and achievement lines. Policy-oriented research on education issues has to be considered, in this context, an important ingredient in strengthening the capacity of all concerned parties to gather the necessary data and to adequately process it for the purpose of informed policy dialogue, and it should be consequently supported.

Even if it has to be kept in mind that no preconceived formula that works always and everywhere. The most developed and successful education reforms in the region -Chile, Minas Gerais, El Salvador- combine most if not all these elements, and use, to a considerable extent, all of the tools highlighted here. They are, no doubt, far from complete or fully accomplished, but, in a unique way, each has combined the majority of the policies that this document has described. The outcome should be a far better education for Latin American and Caribbean children, particularly for the poorest among them. The consequences for the development of the region should be apparent in the medium term via the economic, political and social benefits of a highly educated citizenry.

References

- Amadeo, Eduardo; Jose Marcio Camargo; Antonio Emilio S. Marques; Candido Gomes. 1994. "Fiscal Crisis and Asymmetries in the Education System in Brazil," in *Coping with Crisis: Austerity, Adjustment, and Human Resources*, eds. J. Samoff. Paris: ILO-UNESCO.
- Arcia, Gustavo, Carola Alvarez and Tanya Scobie. 1998. "El financiamiento de la educación" y " la reforma educativa: Un marco para la sustentabilidad," in *Financiamiento de la Educación en América Latina*. Santiago, Chile: PREAL-UNESCO.
- Bock, Kathrin; Timmerman, Dieter. 1995. "Education, Youth, and the Labor Market in Germany." Universitat Bielefeld, Fakultat fur Padagogik. Mimeo.
- Braslavsky, Cecilia. 1995. "Transformaciones en curso en el sistema educativo argentino," in *Educación, equidad y competitividad económica en las Américas: Un proyecto del Diálogo Interamericano*,

- Vol. II, eds. J. Puryear and J.J. Brunner. Washington, D.C.: Organization of American States. pp. 7-50.
- Carnoy, Martin and Levin, Henry. 1975. "Evaluation of Educational Media: Some Issues," *Instructional Science*, vol. 4: 385-406.
- Carnoy, Martin and Castro, Claudio de Moura. 1997. "Qué rumbo debe tomar el mejoramiento de educación en América Latina," in *La reforma educativa en América Latina*, eds. C. Castro and M. Carnoy. Washington, D.C.: Inter-American Development Bank.
- Carnoy, Martin and McEwan, Patrick J. 1997. "Is Private Education More Effective and Cost-Effective than Public? The Case of Chile," Stanford University School of Education. Mimeo.
- Chubb, J.E. and Terry M. Moe. 1990. *Politics, Markets and America's Schools*. Washington, D.C.: The Brookings Institution.
- Cole, Michael and Sheila R. Cole. 1996. *The Development of Children*. W.H. Freeman & Co.
- Comité Técnico Asesor del diálogo nacional sobre la modernización de la educación chilena. 1994. "Los desafíos de la educación chilena frente al siglo XXI," Santiago de Chile: Editorial Universitaria.
- Cox, Cristian. 1997. "La reforma de la educación chilena: Contexto, contenidos, implementación," Washington, D.C.: Inter-American Dialogue, Program to Promote Educational Reform in Latin America and the Caribbean (PREAL).
- Cuban, Larry. 1986. *Teachers and Machines: The Classroom Use of Technology since 1920*. New York: Teachers College Press.
- Deutsch, Ruthane and Aimee Verdisco. 1997. "Lessons to be Learned from the IDB Portfolio of Primary and Secondary Education Loans in Execution," Washington, D.C.: Inter-American Development Bank. Mimeo.
- Dreeben, Robert. 1968. *On What is Learned in School*. Massachusetts: Addison-Wesley Publishing Company.
- Elmore, Richard. 1997. "Investment in Teacher Learning," Philadelphia, PA: Consortium for Policy Research in Education.
- Espínola, Viola. 1993. "The Educational Reform of the Military Regime in Chile: The System's Response to Competition, Choice and Market Relations," United Kingdom: Ph.D. dissertation. University of Wales.
- Gershberg, Alec I. 1997. *Decentralization and Recentralization: Lessons from the Social Sectors in Mexico and Nicaragua*. Working Paper. Washington, D.C.: Inter-American Development Bank. Mimeo.
- Hanushek, Eric A. 1986. "The Economics of Schooling:

-
- Production and Efficiency in Public Schools,” *Journal of Economic Literature*, Vol. 24. No. 3. Pp. 1141-1177.
- Hanushek, Eric A. and Dale W. Jorgenson. 1996. *Improving America's Schools: The Role of Incentives*. National Research Council. Washington, D.C.: National Academy Press.
- Harbison, Ralph and Eric A. Hanushek. 1992. “Educational Performance of the Poor: Lessons from Rural Northeast Brazil,” The World Bank. United States of America: Oxford University Press.
- Inkeles, Alex and David H. Smith. 1974. *Becoming Modern: Individual Change in Six Developing Countries*. Cambridge, Massachusetts: Harvard University Press.
- Inter-American Development Bank. 1996. “Economic and Social Progress in Latin America: Making Social Services Work,” Washington, D.C.: Inter-American Development Bank.
- Inter-American Dialogue. 1998. “El Futuro Está en Juego: Un reporte del Grupo de Trabajo sobre Educación, Equidad y Competitividad Económica en América Latina y El Caribe,” Washington, D.C.: Inter-American Dialogue.
- Jamison, D., B. Searle, S.P. Heyneman and K. Galda. 1981. “Improving Elementary Mathematics Education in Nicaragua: An Experimental Study of the Impact of Textbooks and Radio on Achievement,” Discussion Paper No. 81-5. Washington, D.C.: The World Bank.
- Levin, Henry, Glass, G. and Meister, G. 1987. “Cost-Effectiveness Analysis of Computer-Assisted Instruction,” *Evaluation Review*, vol. 11, no. 1 (February): 50-72.
- Lockheed, Marlaine; Verspoor, Adriaan et.al. 1991. *Improving the Quality of Primary Education* (New York, Oxford University Press for the World Bank).
- McMeekin, R.W. 1998. “Education Statistics in Latin America and the Caribbean,” Technical Study. Washington, D.C.: Inter-American Development Bank.
- Ministerio de Educación. 1997. “Evaluación del Programa EDUCO: Impacto de la Participación de los Padres de Familia,” Ministerio de Educación, República de El Salvador-Banco Mundial. San Salvador: Mimeo.
- Murillo, Victoria. 1996. Latin American Unions and the Reform of Social Service Delivery Systems: Institutional Constraints and Policy Choice. Working Paper. Washington, D.C.: Inter-American Development Bank.

- Murnane, Richard J., Judith D. Singer, John B. Willet, James, J. Kemple and Randall, J. Olsen. 1991. *Who will Teach? Policies that Matter*. Cambridge, Massachusetts: Harvard University Press.
- Navarro, Juan Carlos. 1998. "Descentralización, Gasto y Política Social," in *Rafael De La Cruz Descentralización en Perspectiva*. Caracas: IESA.
- Navarro, Juan Carlos and Rafael De La Cruz. 1998. "Escuelas Federales, Estatales y Sin Fines de Lucro en Venezuela," in Bill Savedoff (Ed.) *La Organización Marca la Diferencia: Educación y Salud en América Latina*. Washington, D.C.: Inter-American Development Bank.
- OREALC. 1994. *Medición de la Calidad de la Educación. Resultados*. Santiago de Chile: UNESCO-OREALC.
- Prawda, Juan. 1993. "Educational Decentralization in Latin America: Lessons Learned," *International Journal of Educational Development*, 13, no, 3: 253-64.
- Rama, Germán. 1992. "Aprenden los estudiantes en el Ciclo Básico de Educación Media?" CEPAL, Montevideo.
- Reimers, Fernando and Noel McGinn. 1997. "Informed Dialogue: Using Research to Shape Education Policy Around the World," United States of America: Praeger.
- Rounds Parry, Taryn. 1994. "The Impact of Decentralization and Competition on the Quality of Education: An Assessment of Educational Reforms in Chile," University of Georgia. Unpublished paper.
- Savedoff, William and Claudia Piras. 1998. How Much do Teachers Earn? Working Paper. Inter-American Development Bank.
- Savedoff, William (ed.). 1998. "La Organización Marca la Diferencia: Educación y Salud en América Latina," Washington, D.C.: Inter-American Development Bank.
- Schieffelbein, Ernesto. 1998. "Education in the Americas: Quality and Equity in the Globalization Process," Washington, D.C.: Organization of American States.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). 1995. *World Education Report, 1995*. Paris: UNESCO.
- _____. 1996. *Statistical Yearbook, 1996*.
- _____. 1997. *Statistical Yearbook, 1997*.
- _____. 1998. *World Education Report, 1998*. Paris: UNESCO.
- _____. Forthcoming.
- Winkler, Donald and Rounds, Taryn. 1996. "Municipal and Private Sector Response to Decentralization and School Choice," *Economics of Education Review*, vol. 15, no. 2: 189-204.
- Wolff, Laurence. 1998. *Educational Assessments in Latin America: Current Progress and Future Challenges*. Occasional Paper Series. Washington, D.C.: Inter-American Dialogue.
- Wolff, Laurence, Ernesto Schiefelbein and Jorge Valenzuela. 1994. *Improving the Quality of Primary Education in Latin America and*

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- the Caribbean: Towards the 21st. Century. World Bank Discussion Paper No. 257. Washington, D.C.: The World Bank.
- World Bank. 1994. El Salvador Community Education Strategy: Decentralized School Management. Country Department II, Human Resources Operations Division, Latin America and the Caribbean Regional Office, December 8.
- _____. 1996. Nicaragua's School Autonomy Reform: A First Look. Washington, D.C.: Mimeo.
- _____. 1998. World Development Indicators. Washington, D.C.: The World Bank.
- World Economic Forum. 1997. The Global Competitiveness Report, 1997. World Economic Forum.

Notes

¹Beyond its distinctive nature as an IDB strategy background paper, the content of this paper is related to recent attempts at reviewing the challenges of educational improvement in Latin America and the Caribbean such as Wolff, Schiefelbein and Valenzuela (1994), and more recently Schiefelbein (1998) and Inter-American Dialogue (1998), sharing with them the focus on quality and equity as the major issues of education in the region. Yet it is particular in its emphasis on the idea of reform as the center of the discussion and it constitutes a deliberate attempt at being at the same time comprehensive -reflecting the complexities of education policy-making- and primarily focused on the institutional and organizational aspects of it.

²A few countries, such as Colombia, Guatemala, Honduras, and Nicaragua still train significant numbers of teachers at the higher secondary level.

³Brazil has not needed this type of decentralization reform because its primary and secondary school systems have always been decentralized both financially and management-wise to state and municipal levels.

⁴That said, in today's climate of educational reform, those states and municipalities led by politicians intent on educational reform and staffed by qualified personnel have been effective in improving education.

⁵IBM has invested in model computerized schools in the United States where all teaching is organized around computers, and in LOGO-based primary school computer labs in countries such as Costa Rica, which are not generally integrated into the classroom life of their schools. Neither

of these possible arrangements has been subject to objective cost-effectiveness evaluation.

⁶Even in the case of the U.S.'s GED, the gains appear to be negligible, raising doubts that equivalency exams have very high value in countries where a secondary degree is already common (Heckman, 1996).

⁷A proposal that has been under consideration in quite a few countries in the region is a legislative or even constitutional mandate to separate a fixed proportion of the government's budget -generally around 7 percent- for education. There is a whole set of important arguments why, regardless of the convenience of channeling more resources to education, this would not be a good decision to make: introducing rigidities in the budget, unleashing a race among sector to get ever expanding shares of the public pie, and others. A preferable option seems to be committing the government to specific and well justified policies that will eventually imply a sustained commitment of expanded resources, as Chile is doing in the case of the program that will take in due time all Chilean schools to full-length school days, instead of the half days now common.

⁸Putting finances right could: financial information gathering and management by educational authorities, since Ministries and secretaries of education need to know more about their finances, their costs and the projections of budget into the future; advancing towards good models of school budgeting and adequate incentives at the school level, a field in which pilot projects and experiments already running deserve close monitoring and wide dissemination; integrating the private sector in overall analysis and planning of educational policy, allowing for a larger and better structured role of private provision of education services; developing accountability, actively involving parents in school affairs as a way to create badly needed stakeholders for educational reform and school improvement; encouraging public information and policy dialogue about current spending patterns and educational priorities in the countries of the region and developing projects in which financial sustainability is a major concern.

⁹One of the few estimates available indicate that for the case of Venezuela private spending in education at all levels in a given year may be equivalent to 90 percent of public spending in education (Navarro, 1996).

¹⁰The errors introduced by the confusion between stocks and flows are not trivial, as it has been pointed out by Schiefelbein. The case of Brazil is extreme: for years, the use of stock statistics as if they were flows resulted in minister after minister stating that the drop out rate between 1st and 2nd grade reached 50 percent. Subsequent flow analysis has shown the drop out rate to be 2 percent. This new and correct number revolutionized education policy. The culprit was repetition, not drop-

ping out, so the former rather than the latter should be the target for policy.

¹¹The minimum set of data needed to undertake adequate flow analyses includes: (a) data on enrollments by grade for at least two consecutive school years, (b) data on repetition for the latter of these two years, (c) data on approvals for the earlier of the two years and (d) data on the number of graduates for the final grade of the cycle.

¹²See MINEP, *Indicadores Sociodemograficos*. San Jose, Costa Rica, August, 1991.

¹³Later results (1992-1996) of the national SIMCE test suggest additional gains in fourth grade pupils' average scores. Much of these occurred in 1990-1992, continuing the gains of 1988-1990. More analysis is needed to determine why the gains occurred, and whether they were "real" (not an artifact of an easier test). One reason for the gains may have been that schools began to "teach the test." Another is that sharply increased expenditures per student and special support programs in the poorer performing schools helped increase scores at the bottom of the distribution (Comite Tecnico, 1994). Recent analysis shows that lower social class municipal schools did indeed make the greatest gains in the 1990s (Carnoy and McEwan, 1997).