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SUMMIT OF THE AMERICAS REGIONAL EDUCATION INDICATORS PROJECT: DATA QUALITY CHALLENGES

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ABSTRACT

This paper presents the Second Summit of the Americas Regional Education Indicators Project (PRIE), whose basic goal is to develop a set of comparable indicators for the Americas. This project is led by the Ministry of Education of Chile and has been developed in the light of countries' needs to improve their information systems and statistics and to construct reliable and relevant indicators to support decisions in education, within countries and the region as a whole. The first part of the paper analyses the importance of statistics and indicators to support educational policies and programs, and presents the situation of countries in terms of information and statistics systems. It discusses major problems faced by countries and reviews experiences in participation in other education indicators´ projects or programs such as INES Program, WEI Project, MERCOSUR and CREMIS. The second part examines PRIE´s technical cooperation program - its purpose and implementation. It emphasizes how technical cooperation responds to needs of countries, and supports them in filling the gap in terms of available and reliable data.

KEY WORDS: Educational Indicators

1. INTRODUCTION

In today's globalizing world the need for reliable statistics and information has become an important tool for policy makers. It is not only necessary to provide information for benchmarking, but also to help us forecast future needs and direct our resources.

Both, internet and the path of technological change have allowed us to count on a wide range of information. Nevertheless, this development has not benefited all countries to the same extend. In particular, less developed countries, specifically countries within the region of the Americas, do not have access to technology, which results in a mismatch between the demand and supply of information.

On the other hand, in the region, there is also a lack of tradition in the use of available information and/or how to use it to make decisions. In fact, Schiefelbain (1997) points out that there is more information available than analysts and policy makers actually use. In the same sense, Puryear (1994) made the point that if statistical information is not valid and reliable, then policy makers do not find it useful. Therefore, a vicious circle develops, in which poor information and demand for information ends in a lack of interest or support for educational statistics programs within countries.

Aware of these regional weaknesses the Regional Education Indicators Project, PRIE- Summit of the Americas- pursuits: i) to construct a set of basic comparable education indicators for the Americas; ii) to strengthen national systems of information and statistics; and iii) to encourage their use to assist education policy making. This project seeks to link separate existing efforts in the region and create a synergy between international organizations and national governments, and not create a parallel additional initiative.

The first part of the paper analyses the importance of statistics and indicators to support educational policies and programs, and presents the situation of countries in terms of their information and statistics systems. It discusses major problems faced by countries and reviews experiences in participation in other education indicators initiatives in the region, such as INES Program, WEI Program, MERCOSUR and CREMIS. The second part examines PRIE´s technical cooperation program - its purpose and implementation. It emphasizes how technical cooperation responds to needs of countries, and supports them, depending on their reality, in filling the gap in terms of available and reliable data.

2. CONTEXT IN THE REGION

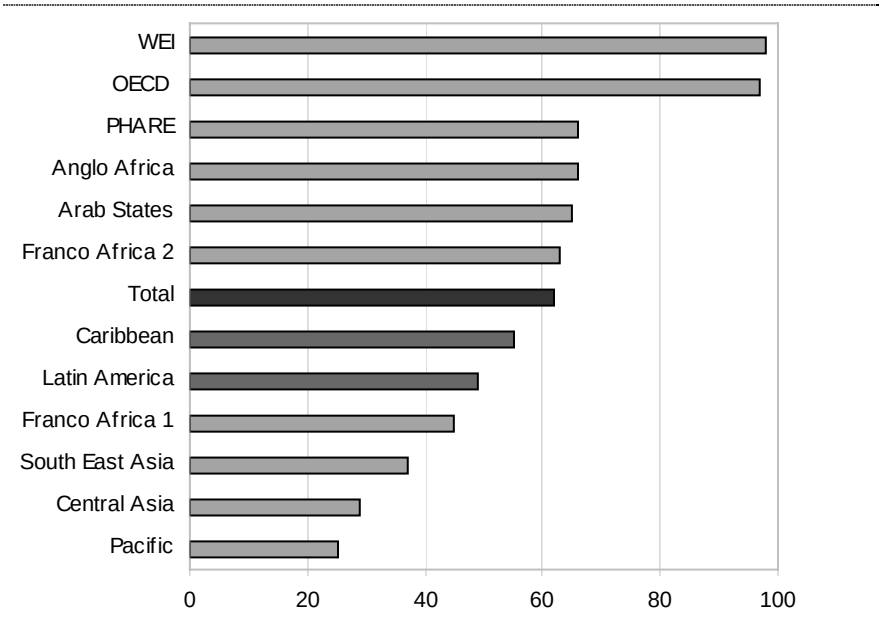
2.1 Statistical Context

According to the UNESCO Institute for Statistics - UIS, less developed countries and specifically countries from the Latin American and the Caribbean region face great difficulties in getting reliable and timely statistics.

Figure 1 shows the response rate to UIS 2000 questionnaires on statistics of education for year 1998. The figure shows a great diversity in terms of responses received. Countries participating in the World Education Indicators Program - WEI and OECD countries have the highest response rate, reaching almost 100 per cent. Latin America and the Caribbean region are below the average ranging from 40 to around 50 per cent. In the other regions of the world the average ranges from 60 per cent (PHARE countries from central and eastern Europe) to 20 per cent in the Pacific.

This means that while OECD and WEI countries are able to fill all questionnaires other countries from Latin America and the Caribbean region are only able to get information for half of the questionnaires.

Figure 1
Response rate to questionnaires on educational statistics, 1998



Source: UIS 2001, Regional workshop, Barbados 2001.

The figure shows the huge differences between developed and developing countries. OECD countries have not only better information and statistics systems but they also count on more trained personnel to work in the area. Countries from less developed regions have neither.

Countries from Latin America that participate either in WEI (Argentina, Brazil, Chile, Uruguay, Paraguay and lastly Peru) or INES (Mexico, USA and Canada) are an exception. These countries have reached certain level of development and are able to get a wider range of information across different sources. Nevertheless, this is not the situation for all countries in the region.

Mc Meekin (1998) summarizes the reasons for such a problem in Latin America and the Caribbean region. He states that there are 2 basic problems the region faces: problems with a technical nature and problems with an institutional nature.

Problems with a Technical Nature:

Definitions, methodology and gaps in the availability

- There are differences in the educational system structure, across countries. The general twelve-year system of primary and secondary education varies. Thus, the need of understanding the International Standard Classification of Education ISCED 97 becomes essential.
- There are many differences among countries in the concepts and definitions used to describe their education systems and related functions, not only in the structure of the system but also to describe concepts such as repetition, promotion, dropouts, etc.
- There are problems in collecting information related to key variables and indicators such as enrolment and repetition. For example, for enrolment there is no private sector data in most cases, and there are different periods for gathering data depending on seasons and lags; repetition is poorly measured as it is dropouts or wastage; data on teachers is gathered in a variety of ways using widely different terminology and indicators.
- In some cases, there is no time series data.

Quality control, accuracy and reliability

- In most of the countries there is no quality control. In fact, countries in general, do not conduct formal studies to assure that the data supplied by schools or sub-national units is complete and accurate.

Problems with an Institutional Nature:

Some of the problems that affect education statistics in Latin American Countries (LAC) arise not only from technical problems of data gathering, processing and using, or differing concepts and definitions, but from factors related to institutional aspects. These aspects limit the provision of education statistics.

In general, education statistics units are isolated, which results in no collection of external data (context variables) which is essential in order to have a comprehensive useful system of education indicators. Education statistics staff, who are often poorly paid and inadequately trained, strongly resists the idea of seeking data from outside the Ministry of Education, or even the units they belong to, and the schools system itself. This, not only limits the scope and usefulness of the data gathered and analyzed, but means that statistics´ units have little understanding of the needs and interests of the users of the importance and statistics produced.

There is no culture of quantitative analysis and evaluation. In fact, Schiefelbein (1997) points out that the weakest link in the chain between education statistics and policy, lies in the final stages of analysis and use of the information. In the same sense, Puryear (1994) makes the point that if statistical information is not reliable, then policy makers do not find it useful, therefore a vicious circle develops, in which poor information and demand for information, results in a lack of interest or support from educational statistics programs. In part, this has to do with low experience and training; and in part it is due to the high turnover among senior officials and their advisors and second-level appointed officers.

There is also little information on education provided by the private sector. Information on costs and finances for non public education is specially difficult to obtain.

In some cases, relations between levels of government are poor, data is not reported, and local statistics units may prepare data that are not mutually compatible within a country.

A number of countries have or are implementing educational reforms of greater or lesser magnitude. These changes sometimes involve major modifications in educational statistics.

2.2 Construction of indicators

Some initiatives related to the construction of international comparable education indicators, are already underway. Sub-regions within Latin America and the Caribbean have worked to strengthen the processes of integration in the area of education through the creation or improvement of information statistics´ systems and construction of indicators, to make possible comparisons between national education systems. Different sub-regional fora and countries participating in international projects have addressed the issue of the relevance of generating comparable indicators in education.

In fact, Mexico, USA and Canada - OECD member countries, are participating in the INES Program, which seeks to construct a wide set of international comparable education indicators in different areas such as access, participation, progress and resources, among others.

OECD and UNESCO created in 1997 a similar experience for other non OECD countries - the World Education Indicators Program, WEI, where 5 Latin American countries participate (Argentina, Brazil, Chile, Uruguay and Paraguay). Since 2000, Peru and Jamaica were incorporated into the program. Similar to the INES Program, WEI constructs a set of comparable education indicators but to a lesser extent than those from INES.

In addition, since 1997 countries from Argentina, Brazil, Chile, Paraguay and Uruguay created the MERCOSUR Education Indicators Project, whose main objective is to construct a set of comparable education indicators relevant for their specific reality.

In 2000, the Caribbean Regional Educational Management Information System – CREMIS was created for this sub-region. The ultimate goal of this Project is that each of the 22 national systems produces outputs that feed into a the single system.

The existing different comparable education indicators initiatives stated above are the starting point in the region from which to build up the framework for creating a new project that can bring them together and construct a meaningful set of education indicators for all countries in the region.

3. THE REGIONAL EDUCATION INDICATORS PROJECT - PRIE

At the Second Summit of the Americas (Chile, April 1998), heads of states and governments adopted a Plan of Action for Education that urged countries to strengthen their systems for assessing the quality of education and to establish ways to compare some education indicators in the hemisphere.

The Regional Education Indicators Project proposed by Chile in collaboration with UNESCO/OREALC, seeks to construct indicators by building upon the existing initiatives in the region and to create a coherent strategy so that all countries in the hemisphere may work together in the development of comparable education indicators.

3.1 Objectives

In order to reach the long-term goal of the creation of a permanent education information system within the Americas, the project has defined the following objectives:

General Objective
In line with the objectives established in the Action Plan of the II Summit of the Americas, the project has the general objective of producing and analyzing a set of basic comparable indicators within the region that will contribute to education policy decision-making by national governments.

Specific Objectives

i. To construct a basic set of comparable indicators in education, using a common methodology, which will promote a common effort in this area on the part of international organizations, sub-regional organizations, and of the governments in the region.

ii. To provide technical support to countries for the construction of indicators and to identify the current state within countries of statistical systems in education. Such information will provide a basis for developing programs of technical cooperation.

iii. To encourage the use of information generated by a set of basic comparable education indicators, which will be presented periodically to show the current state of education and an analysis of education systems within the region.

3.2 Project components

In order to achieve the above objectives, three complementary components have been identified:

i. Construction of comparable education indicators. This component seeks to select, develop, and calculate a basic set of comparable education indicators.

ii. Technical cooperation. Through this component PRIE seeks to provide technical support to countries in order to get better information and statistics for the construction of the indicators. As a result of this component the improvement of a basic set of comparable educational indicators is expected.

The experience for year 2000 shows that countries along the region faced problems of different nature in order to fill UIS 2000 questionnaires. Nevertheless, the situation in both Caribbean and Latin American countries is quite different. The Caribbean region´ difficulties are related mainly, to calculation methodology, identification and collection of information and analysis of results. In fact, 13 out of 22 countries identified problems in data collection and 15 out of 22 countries had difficulties completing the questionnaires because of implementing ISCED 97, information on educational finance, consideration of additional sources of information and estimation problems.

On the other hand, Latin American countries faced problems in terms of their information systems related to: finance information, tertiary education information, ISCED 97 and non formal education information. Eight out of 17 countries faced problems with their information system and 5 out of 17 countries with financial information specifically.

Based on this information, a technical cooperation program for supporting the construction of the education indicators considered in the project, has been developed. It has been possible to identify 3 alternatives or instruments for the needed technical assistance. These 3 alternatives are: technical cooperation for individual countries, workshops in specific issues for small groups of countries and internships in countries with a particular experience for a group of countries.

Additionally, countries have been classified in groups according to their level of difficulty. Three types of countries have been classified:

Countries A. These countries have statistic information and therefore do not face great difficulties to fill UIS questionnaires. Thus, these countries will not be part of the initial technical cooperation program. These countries are those from Latin America which are currently participating in the WEI Argentina, Brazil, Chile, Paraguay, Peru and Uruguay, and Aruba, from the Caribbean.

Countries B. These countries have some statistic information, but they face problems in terms of gathering and organizing the needed information, as well as understanding ISCED 97 classification and adapting their educational system to it. Therefore, they can not complete all the questionnaires or they do not do it correctly. Technical cooperation will be focus on strengthing and improving these aspects. In the Caribbean region these countries are OECS countries (Anguilla, Antigua, British Virgin Islands, Dominica, Grenada, Montserrat, St Kitts & Nevis, St Lucia, St Vincent & the Grenadines), Belize and Jamaica and in Latin America Bolivia, Colombia, Ecuador, Venezuela and countries from Central America (Dominican Republic, Nicaragua, Honduras, El Salvador, Guatemala, Costa Rica and Panama).

The technical cooperation programme, for these type of countries, have been structured according to their specific reality and needs, for both the Caribbean and Latin American region. It was agreed, for the Caribbean region, to provide individual technical assistance, in a first stage, to Jamaica, Santa Lucia and Belize. Meanwhile in these 3 workshops, 2 monitors from the region are being trained, so that afterwards they can cover other countries in the region with similar needs.

In Latin America, no individual technical cooperation will be given. Instead, the experience from countries, already participating in international education indicators projects, will be used to work with small groups of countries in specific common issues related to UIS questionnaires and considered indicators, or internships in countries with more experience in the matter. Central American countries (Dominican Republic, Nicaragua, Honduras, El Salvador, Guatemala, Costa Rica and Panama) participated in an internship carried out in Mexico in the September 2001.

Countries that are part of Andrés Bello Agreement (Colombia, Venezuela, Bolivia and Ecuador) will participate in a workshop on finance and costs. It will be conducted by the Ministry of Education of Chile and UNESCO/OREALC.

Countries C. These are countries which almost do not have any reliable statistic information and their statistical systems are weak and therefore face important difficulties for filling UIS questionnaires. Technical cooperation will be oriented to identify the weaknesses and strengths of their information and statistic systems and to define and agree with the country strategies to develop and improve their systems, in the mid term. This type of countries are Honduras, Suriname and Haiti.

iii. Dissemination and analysis of the indicators. The objective of this component is to provide countries with comparable information that is reliable, relevant, timely, and with meaningful and accessible analysis, to support education policy decisions and to make them more efficient in the region.

Indicators and statistical data will be systematized and published periodically (annually or biannually) and complemented by a comprehensive analysis for the region that can incorporate information from relevant studies and research carried out within the region. In addition, other information from both the education sector and from secondary sources will be included to provide a complete analyses of the current situation and problems, facilitate its understanding, and therefore, make possible more accurate policy analysis and responses.

Success in policy making requires analysis and interpretation of the information that allows education decision-makers to differentiate key problems from those that are passing and short-term, and to have as a reference the situation of other countries in the region.

4. CONCLUSIONS AND NEXT STEPS

It can be stated that PRIE faces two major challenges. The first is the development of a set of comparable indicators; the second is to follow the timely fulfillment of the goals established by the Summit of the Americas.

The Development of Comparable Indicators

An initial line of action for the first year of PRIE is the further improvement of the construction of the 25 indicators initially anticipated in the project.

There have been difficulties in the construction of these indicators, due either to lack of information, unsystematic collection of information, problems for understanding the definitions and concepts, as well as difficulties in terms of data collection which limit international comparability.

An example of this is the category of indicators related with education resources, specifically with teachers and expenditures. In relation with information on teachers, there is notable lack of information for constructing indicators on teachers' formal qualifications. With regard to expenditures, there are information problems on private and capital spending for education.

There is a special need to construct comparable indicators for the entire region in the "quality of education" category. In spite of individual countries' efforts in this area, in most of the countries, and of progress in international comparability for an important set of these indicators as a result of the work of the Latin American Laboratory, this is an area that demands special attention.

Similarly, for the analysis of equity there are difficulties in the construction of indicators, either due to lack of information desegregated by levels of income, or in the way these are used by international agencies. Moreover, another challenge for the analysis of equity is to develop statistical information disaggregated by linguistic, ethnic, racial, or other cultural characteristics of the population. This problem arises because many countries do not collect such data, as well as to comparability, given the problems of differences in definitions. This subject has been one of the themes around which the working groups of countries are organized within the framework of PRIE. The development of these groups will be encouraged.

In addition, another important problem in the construction of comparable education indictors is linked with how to handle demographic information. On the one hand, UIS uses United Nations population data, which means that for many Caribbean countries, there is not information disaggregated by single ages. This prevents the UIS from calculating indicators for access, participation, and coverage. On the other hand, in many cases, there are inconsistencies between enrollment and population data, which leads to distortions in these indicators.

In regards to the construction of new indicators, the intention is to progress, on the one hand, towards the development of social impact indicators that can help us to identify the relationship between efforts in education and its impact on society. This concern of PRIE goes beyond the known impact that education has on the labour market, and seeks to treat demographic, social, and cultural aspects such as democratization, participation, health, and, in general, the quality of life of the population as well. Additionally, there is a wish to identify new indictors in the considered different categories that treat more precisely, processes and results of education, such as progress in education and the fulfillment of the commitments of the Summit of the Americas for 2010. Examples include indicators of remaining in and finishing studies, material resources and teacher performance, among others.

To accomplish this, PRIE should coordinate the efforts with UIS in order to identify specific problems and seek possible solutions. Therefore, technical cooperation to and between countries must be strengthened. This should be aimed to those countries that have the greatest weaknesses in terms of collecting

information, and should respond to the specific demands and needs of countries. Technical cooperation activities should be concentrated to countries based on their results in the collection of statistical information. The less available information, the greater the priority of offering them technical cooperation.

Finally, but not least important, a great challenge for PRIE is the promotion and greater use of information and indicators by countries in the region in the definition and assessment of their education policies, both in terms of the international commitments assumed at the Summit of the Americas and in other international agreements.

Follow-up of the Goals of the Summit of the Americas

A second set of challenges is to have indicators that make possible the follow-up and fulfillment of goals and the development of strategies established in the Plans of Action of the Summit of the Americas, as well as to analyze in depth the state of education in general.

For each Plan of Action goal, a set of indicators will be identified and developed to assess its degree of fulfillment. Currently, PRIE has indicators in the category of access that reflect coverage attained at different levels of education systems. Comparable indicators are yet to be developed in the areas of permanence in school and of education quality.

This will allow the project to contribute to knowledge, and to the formulation of policies through the use of indicators pertinent to and agreed-upon by the countries involved, in order to observe the development of education in its various dimensions.

REFERENCES

McMeekin R.W. (1998) "Education Statistics in Latin America and the Caribbean" Technical Study, Washington.

Puryear, Jeffrey M. (1994) "International Education Statistics and Research", *International Journal of Educational Development*, 15, Nº 1, pp 79-91.

Schiebelbein, E. (1997) "Algunas Deficiencias en el Uso de las Investigaciones y Estadísticas Educativas", in Persona y Sociedad, ILADES, Santiago, vol. XI, Nº 2, pp. 39-50.

Ministry of Education of Chile and UNESCO/OREALC, Regional Education Indicators Project, (2000), document presented in Washington, USA.

Ministry of Education of Chile and UNESCO/OREALC, Regional Education Indicators Project, (2000) "Regional Report", unpublished report, Santiago, Chile.