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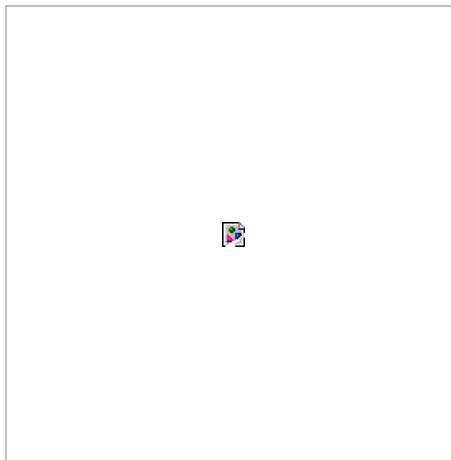USAID Request for Proposals: Innovations in Education Data

EMIS Development in a New Era

HAIYAN HUA

For the past 20 years as computer technology has revolutionized the efficiency of information gathering and management, we have been witnessing a steady and impressive progress in EMIS development in education sector in almost all developing countries. Although the development has been uneven most can claim an accomplishment of achieving the goals of improvement in collecting annual school census and producing statistical yearbook on education.

Moreover, today, many would find themselves competent with their own institutional capacity in EMIS without any foreign assistance. There is no doubt that in these countries we are seeing more data on all aspects of education that are more frequently collected, better managed, and more available in all forms, aggregated or disaggregated.

Today, many international data stakeholders (UNESCO, World Bank, etc.), NGOs and research institutions are now able to publish the data (mostly originated from these EMIS centers of the developing countries) for monitoring educational development goals. Missing data does not appear often any more in world education indicator tables. This is largely a success of country-level EMIS development.

Major shifts

For the past few years, I have seen major shifts in EMIS development.

From computer-based to internet-based development.
It is fairly common today that EMIS data application is completely internet-based (sometime intranet-based), accessible through a MoE's portal website. Data can now be directly entered from schools, rather than through district or regional offices.

Although the ability of data reporting is still far behind the ability of data collection in most countries, the internet-based EMIS development has drastically shortened the collection cycle, made the collection process easier and less tuned for data errors, and surely enables a possibility of letting data be accessible to all levels.

From reporting on national statistical aggregates to reporting on sub-national or even grassroots level disaggregates.
With more disaggregated data, we see many forms of school or district report cards that are produced by many EMIS centers. These are the report cards to individual schools or districts. Schools for the first time see their performance (on multiple education indicators) against their district, regional and national averages.

Parents and teachers may now be empowered with the school performance information to

engage in school improvement planning process and inform their lesson plans. Smart reporting becomes the key to the EMIS development in the new era (school report cards and dashboard on the internet, and indicators posters, etc.)

From school-based development to student-based development.
Tracking students during the life time of schooling is now possible without too much burden of organizational management. 20 years ago, such attempt tried in several countries failed miserably. But today it is for the first time applicable. Although this does not mean tracking students on the daily basis (such as daily attendance) at national level, it can significantly identify student academic needs and provide needed services. The real value of the student-based EMIS development is to enable the school value-added assessment.

From data control to data share.
In today's era, the single most important aspect of measuring the success of EMIS development is to see how widely available the managed data is in all forms to all people. Absolutely, there should be no discount or compromise. The best practice is to make data downloadable from website in all forms for all users and EMIS management in fact promotes the awareness of the availability. The old mindset of data control is totally behind the times. Quality of data can be easily and quickly revealed if it is made available to all users.

Data Abundance

In the past decade, every MoE I visited around the world, I found that data was abundant, in fact, too much to "consume", particularly if I dug deep. Data often exists in various computers and grouped into multiple files stored in a powerful server at the EMIS center. Data on student performance, teacher qualification and years of experience, and school facilities are all existent and managed by different data stakeholders within the MoE.

These data centers may use different computers, database applications, and organize their data differently. In fact, much data remain on paper such as student and teacher daily attendance. But they own and know their data extremely well. Yes, they may not tell each other the details of the data internally and hardly share the data with external consultants, who may happen to be the only agents who can make the data known to the outside world.

As data has grown exponentially in quantity and quality, EMIS has made it possible that multiple years of data, multiple levels of data and multiple sources of data can be quickly retrievable. But, EMIS has not made a critical difference in the use of information. Although this may not necessarily be a direct responsibility of EMIS, data housed at EMIS must be so widely available and so well managed to enable the analytical and synthesizing process by all potential users.

A Big Remaining Challenge

A critical challenge remains, that is, the consumption or use of the EMIS data or information. In fact, I won't be surprised if we find the use of information has been somewhat abated as the production of it grows in the past two decades. While many MoEs may have been indulged in a new competency in EMIS capacity, almost none invest in the actual use and synthesis of data and information for institutional policy development or management decisions.

In fact, even investing in contributing factors (such as optimal ways of displaying data, associating policy implications with each indicator analysis, or producing policy analysis or M&E briefs) to the use of data is almost nil. Data must be integrated and analyzed in a new light to be meaningful to policy makers and system managers. Simple display of "current status" in tables or graphs is inadequate. Growths, trends and relational implications must be brought to the known surface.

As we know EMIS often serves as supply side of the information production cycle, the consumption of EMIS product depends on the demand. Lack of investment in demand for data and information, EMIS development will never reach its intended potential. In today's era, we may be at a point that EMIS has run up against the bottleneck of the demand. Yes, this is not new problem but has never been more acute and prevalent.

Dilemma

How can we have more data but less use of it? This is not too surprising. As a result of technology advancement, more people are inclined to collect data and manage it. In education sector, more departments and more lower levels such as schools and district offices are equipped with IT or ICT. They surely have more demand for monitoring and supervision. Many would get into the business of data or information management.

As more data from more sources is produced, duplication in data collection is more likely and discrepancies among multiple sources of the similar data make the data less trustworthy by potential users. Your data vs. my data speak differently. If this is not properly managed and coordinated, the result is often undesirable leading to data flow chaos and erratic.

Moreover, when more data is available, more policy or decision relevant inquiries are likely. That would also require more higher-order relational data analysis. But often the skills for it are absent in developing countries, creating a dependency on external consultancy.

EMIS development in a new era.

EMIS is never a technology issue, but information management challenge. Today's technology can do all things we can dream of, but we can only fail at envisioning those things. Given the

quantum leap of information development and the globalization of information accessibility, the new stimuli for EMIS development going forward is to embrace the concept of distributing (a form of aggressively disseminating) the collected data in all forms widely to all people. In other words, we must get rid of "fear" factor, fearing of getting the data to others.

This is not only a new stimuli for EMIS development but an ultimate test how successful EMIS development will be. After all this is information on education we are all concerned about. Nothing could be better than informing all about the truth of the educational development and school performance.

Technology will never fail EMIS development but our fear for sharing information will.

Written by Haiyan Hua on June 13, 2011 in Education Management Information Systems. Tagged: Data Abundance Data Chaos Data Overload Disaggregates Education Indicators EMIS Development EMIS Management EMIS Success | Trackbacks

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Ed Gaible · *61 weeks ago*   0

Dear Haiyan Hua, While I appreciate your vision of successful EMIS deployment, in my experience the results that you describe are over-optimistic in the extreme. Optimism in the face of challenges can be strengthening, certainly, but among the many problems with EMIS deployments over the past 20 years has been a prevailing tendency to oversell the possibilities and to underplay or discount failures and inadequacies. A few quick examples by way of response:

- Last time I checked, UNESCO Institute for Statistics had significant gaps in terms of national reporting of, say, secondary enrolment (ISCED 2 and 3) among other tables ["Missing data does not appear often any more in world education indicator tables."]

- Programs in countries that have attempted to roll-out Web-based EMIS reporting have foundered as a result of uneven infrastructure (St Lucia around 2006, Indonesia with PADATI and PADATI 2) ["It is fairly common today that EMIS data application is completely internet-based (sometime intranet-based), accessible through a MoE's portal website."] Indonesia is one of the largest school systems in the world; they don't have accurate coordinates for schools or reliable teacher and student records.

- Even computer-based (i.e., spreadsheet, or non-web-based) programs have failed, basically, in a number of countries (Indonesia's initial spreadsheet-based EMIS effort, the name escapes me, is generally not used; data from the system _can_ be entered by computer, but most districts require printed reports, which are hand delivered and re-entered into the district-office system)

SO: You are without doubt way, way more knowledgeable about EMIS than I am, but even as a non-specialist I'm much more familiar with limitations, challenges and failures of EMIS deployment than I would like to be. I'm concerned that many MOEs will continue to under-estimate the barriers to successful EMIS, and that additional money and time will be wasted on efforts that are inappropriate for national infrastructures, school infrastructures, school capacities or, as you mention, the data-analytical capacities of central agencies.

If your intention is to drive country-governments to undertake more (or more effective) EMIS implementation, perhaps a good starting point would be to highlight results achieved and benefits derived from some of the world's successful projects. If your intention is to underscore the need for improved information management among central agencies (or among district/regional agencies), it might be helpful to outline specific practices or competencies that really bear fruit.

I hope you won't take offense at this message. I've seen some of your work (a report / presentation on EMIS in Egypt, I think), and it's great. I'm sure that you have a lot to offer in terms of a practical approach to EMIS that's more grounded in the diverse and often critically limited realities of developing-country school systems.

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Haiyan Hua · *60 weeks ago*   0

Thank you, Ed, for your thoughtful concerns and analysis. I surely agree that there is a large variation out there in terms of EMIS development. My main thesis is meant to inform that EMIS should not be expected to do the magic of information use, but expanded analytical capacity within the MoE could. This expanded capacity is sometimes forced upon EMIS system managers even though it shouldn't their responsibility because staffers are not qualified or trained for it. Yes, I recently worked with a team of 10 policy planners and analysts in the MoE in Egypt for almost 2 years to analyze the past 10 years of data, mainly collected by EMIS system and a few other sources within the MoE, on student achievement (standardized test results and TIMSS), teacher qualification, training, and characteristics, school facilities and characteristics (such as student-teacher ratio, class size, and school facility composite index), financial data at school level (cost per student, education expenditure per student), and others. The group has produced the "Condition of Education in Egypt" for the first time for the country (analysis of 30 national

education indicators). The product is about to officially be launched. All data used is capitalized from existing EMIS source and a few others (integrated with the EMIS data). I still remember that 2 years ago, Egypt is mentioned by international agencies and consultants that it does not have education data and does not have an effective EMIS system. We proved that they were wrong. The new Minister and his senior advisors and panel of leading education experts in the country just reviewed the information product and agree to launch it and disseminate to all and put it on the MoE website. It should be available soon.

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