

Overview of Institutional Information Resources for Education

Introduction

The quality of an education system is linked in many important ways to the quality and availability of information about that system. In providing a detailed picture of government information resources for education, this directory can help point the way to improving educational quality and administration. The most obvious and direct use of educational information is for effective internal decisions and actions to maintain or improve the system. This principle applies to virtually every aspect of educational management and policy making, from the classroom to the highest levels of national government. The same principle applies to the support and participation of citizens in the education system. This system is a critical part of any society, so citizen access to information about the system and its performance can be equally important. In addition, those who study education to better understand and improve it have similar needs for high quality, timely and relevant information. So whether for the needs of management, policy making, citizen participation or research, good education depends in part on good information.

Those who work at improving information resources for education need information themselves. This directory helps provide three kinds of information useful for their work. First, by identifying the persons and government agencies that work with educational information, the directory provides contact data to improve communication, sharing and collaboration. The directory can help link professional colleagues, researchers and others who work with educational information. It also provides guidance to international agencies that support improving information resources. Second, the directory provides a snapshot of the resources available in each agency, including databases, personnel, technology, and training facilities. Third, the highlighting of publications and training facilities shows how information resources are being used and shared. This information about resources and dissemination can be used to highlight exemplary programmes and methods, as well as areas in need of development and support.

As an initial effort, this directory demonstrates that it is feasible to collect and report this kind of information across a large and diverse region. The directory also provides valuable institutional and operational data about individual agencies and their staff. These data serve as a foundation for further sharing and development of quality information resources.

Agencies Responsible for Educational Information Resources

To help interpret the data about individual agencies and countries this section describes the general role of these agencies in an education system. Governments typically have one or more agencies with responsibilities for educational information. The main responsibilities include:

- collecting information about the status and performance of the education system
- ensuring the quality of that information
- producing analyses and reports for management and policy making
- disseminating information to the stakeholders of the education system (parents, elected officials, etc.)
- using the information for research to better understand and improve the system
- training education staff in information resource management, analysis and research.

How the work is organized and the level of effort in each area will vary, of course, from one country to another, depending on the size and complexity of the system and other factors.

The variations in the size and resources of the agencies which are at central level shown in this directory are quite large; in terms of staffing, for example, Thailand reports seven agencies with responsibility for educational information and a total of 265 staff, compared with Malaysia (one agency with a staff of 20) and the Lao PDR (one agency with a staff of 5). There does not appear to be a close relationship between the school population of the country and the size of the educational information enterprise. China reports two agencies with a total staff of 40, while Bangladesh reports one agency of twice that size.

These variations can be the result of at least three factors. Most importantly, not all agencies with educational information responsibilities are included in some country reports. The Thailand report, for example, apparently comes close to capturing all the agencies of this type at the national level. But in Malaysia, by contrast, the report does not include the information units in each of the 14 provincial education offices or data collection and reporting functions in other parts of the Ministry of Education. Second, the size and complexity of the information function will also depend to some degree on the size and complexity of the education system. And finally, policy choices in each government can lead to varying levels of activity or need for resources. For example, some governments may choose to support large, elaborate research functions as part of an information agency while others may limit the agency to collecting and reporting basic statistics. Therefore, judgments about the adequacy or quality of each country's information resources should be made only in light of more complete information about the policy and organizational context in which the agency works. Nonetheless, a very small staff size should at least raise the question of whether adequate resources are being devoted to this important area of educational administration. The lack of adequate resources to collect and use educational information can have serious consequences for the overall efficiency and performance of the system.

Data Collection and Databases

Overall, data collection is relatively comprehensive and consistent among the reporting agencies. They have similar practices in the frequency and types of data they collect. Agencies in all but one country report annual collection of data for pre-primary through secondary levels of education and three-fourths or more include tertiary and vocational education data. However, there is less coverage of data on teacher education or non-formal education. It is relatively rare that agencies report data collections more frequently than once a year, though in some small number of cases collection activities occur three or more times per year.

There is similar consistency in the types of information collected by the agencies. Almost all report collecting general data on schools plus data on students, staff and classes at least once a year, and more frequently in a few cases. Financial information is the next most frequently collected data type, reported for over three-fourths of the agencies. Information about school resources (curricula, buildings, materials, and other facilities) is collected in approximately two-thirds of the cases. But information about teacher education and community participation receives much less attention. This type of information is collected in less than half of the agencies reporting. Overall, the pattern of collection across the types of information leaves many gaps. Only about one-third of the agencies report collecting all twelve types of information covered in the survey. In some of the cases with less than complete collection schedules, another agency in that country covers the gap. But in almost half of the countries covered in the survey there was at least one type of information not collected on at least an annual basis. If the reported gaps represent actual voids in these types of information, there can be potential problems for management and policy making. The gaps may represent either the low priority given to a particular area of activity, such as community participation, or lack of adequate resources. In any case, the absence of information at the national level about any major component of the education system is a signal for careful attention to the reasons for and possible consequences of such a gap. This survey can be a useful guide to that kind of administrative review or improvement effort.

This pattern of largely annual data collection reflects the national level of operation of these agencies. The primary purpose of most data collection is likely to be annual statistical summaries or required reports for the country as a whole. This kind of activity is typically expensive and time consuming, so would not be undertaken more frequently in most cases. This annual cycle does represent a potential problem regarding the timeliness of the information reported. When collection is on an annual basis, even the most rapidly prepared reports are for a previous year. In some countries annual statistical reports and summaries are regularly two or more years behind. In these cases, the usefulness of the data is substantially diminished and the risk of serious errors increases. Therefore the timeliness of reports and access to these data collections should be taken into account in reviewing the resources in any agency or country.

Technical Resources

Computers appear to be the major technical tools for these agencies in handling information and other activities. All reported using computers, with desktop PCs being the dominant type. In terms of capacity, desktop computers do offer the prospect of considerable efficiencies if the necessary funding and training are available. In some cases the number of computers in use exceeded the number of staff. However, the ratio of computers to staff does appear to vary widely, with relatively few machines in some of the larger agencies. This kind of resource scarcity is an area of concern for institutional development. Four of the agencies also reported using mainframe/mini computers.

The software environment for these agencies shows considerable consistency, reflecting the wide use of PCs and the Windows operating system. Microsoft Office is the dominant software in use for database and analytical tasks. More than three out of four agencies use some combination of Access and Excel for database work, and only a slightly smaller proportion for analysis. FoxPro and dBase are the next most common software tools, often used along with the Microsoft Office products. These tools are sufficiently powerful and cost effective for practically any database or analytical task involving relatively small numbers of records or file sizes. For very large files a more robust database application, such as Oracle, may be necessary and is in use in several of the agencies. For analysis, SPSS is almost as common as Excel and agencies often use both. These software tools are sufficiently flexible and functional to perform the typical tasks of data manipulation, management analysis and statistical studies.

The importance of information about education for management purposes is indicated by the high proportion of agencies that employ an educational management information system (EMIS). Roughly two-thirds of the participating agencies report such a tool in use, in several cases one developed by the agency itself. An EMIS is typically a special-purpose database application that stores and processes data of direct relevance to management operations and decisions. The system could include financial data, personnel and operational records, facilities data, and specialized reporting and analysis tools. The existence and use of an EMIS are clear indicators that the agency is using its information resources to improve the operation of the education system. Since these management systems are likely to be tailored to the particular needs of the users, it is not possible to review the actual functions of these systems based on the directory information. Additional data about these EMIS applications may be included in future surveys.

A somewhat smaller proportion (less than half) report using a Geographic Information System (GIS) application. For those cases, MapInfo and Arc View seem to be roughly equal in popularity. A GIS has many potential uses in educational management and policy making, and can be a powerful analytical decision support tool. The fairly widespread use of GIS is a positive indicator of the growing sophistication and technical capability of these agencies.

The use of Local Area Network (LAN) and access to the Internet were also widely reported, although not all agencies have these resources available. Four agencies reported no Internet access and eight lack local networks (LAN) to connect computers. The absence of local networks may result in some inefficiency in agency operation, but is not likely to be a serious problem. However, lack of access to the Internet can be more troublesome. Inability to access the large amount of information available on the World Wide Web, or inability to use the Internet for communication and data transfer, can be a major constraint on gathering and analyzing information. Overall this does not seem to be a major problem for the region but may be one for the few agencies that lack access.

Training Resources

Most of the agencies (over three-fourths) reported training programmes in a variety of subject areas. Data collection and compilation, statistics, and computer skills were the most frequent topic areas, with programmes offered in approximately two-thirds of the agencies, with relatively little attention given to survey research. The participants in training were drawn from central government staff, regional staff and agency staff, with the first the most frequent. It is clear from these responses that the training function is an important one for these agencies and is focused primarily on their data collection and processing functions. A possible area of further development would be training in utilization of information, as well as in GIS and other emerging technologies.

Implications for Development and Educational Policy

The agencies that provide information for educational management and policy can be thought of as strategic leverage points in the system. That is, a relatively small amount of effort and resources, or their lack, can have a disproportionate effect on the overall system. Management decisions and actions that are well informed and based on careful, systematic analysis of high quality information are much more likely to be effective than those without this support. Therefore the investment of resources in acquiring and applying good information and analysis has the potential to yield substantial returns. The opposite can apply as well, where lack of good information resources leads to poor performance or wasteful decisions.

This directory is a tool in efforts to improve the overall quality and availability of information resources for education. It will be expanded in future editions to encourage further investment and collaboration in this important area of work.