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## Developing Nations, the Digital Divide and Research Databases

*Sam Brooks,<sup>1</sup> Paul Donovan, and Clint Rumble*

Available online 3 November 2005

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The digital divide affects many nations of the developing world. The term encompasses inadequate funding, a lack of necessary computer and Internet skills, and a lack of English-language proficiency that hinder expansion and use of digital information resources. Visionary individuals and organizations can assist these countries with their information needs. Aggregated full-text databases serve as a prominent tool in closing the digital divide because they provide important research resources. Participating organizations must demonstrate the value of these resources to users and supply essential training to ensure success with electronic resource initiatives. *Serials Review* 2005; 31:270–278.

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### Introduction

“The ‘digital divide’ is not all it seems. The gap between those who can use information technology effectively and those who cannot is just one of a range of discrepancies—national and international, urban and rural, rich and poor—which afflicts low income countries. What distinguishes the issue from the broader economic and political situation is the capacity of digital media to effect change.”<sup>2</sup> By dramatically increasing access to pertinent information through electronic resources, developing nations stand to experience many potential benefits. Most notably, such countries may see a sharp increase in the overall quality of education in their schools and universities through increased access to the latest research information. The residual benefits from having a better educated populace can often include the development of a more highly skilled workforce and an improved economy overall.

Some dramatic advancements have already taken place. In the universities and hospitals of many of these

emerging countries, the greatest exposure to new, full-text research data has come in the form of electronic (online and/or disc) access to peer-reviewed journals. The vast majority of these journals are provided via major academic research databases. When combined, these databases provide more than ten thousand full-text serials to hundreds of libraries that in many cases previously only had access to less than one hundred journals in print. The electronic access via these databases not only includes an overwhelmingly larger collection of sources, but it also includes full text from some of the most prestigious (and most expensive) journals in the world. In many cases, full-text backfiles for these journals span twenty-five, thirty-five, or even more than fifty years.

There are positive signs that the developing world is ripe for an influx of electronic information sources. While the number of Internet users in many emerging countries is still only a shadow of what exists in wealthier nations, such numbers are increasing rapidly. A 2005 article in *I-Ways* states: “The growth of Internet users in the developing world has been faster than growth rates in rich countries since the mid 1990s, and compared to what might be expected given the size of their economies, the developing world is doing very well in terms of usage.”<sup>3</sup>

Information providers and other dedicated organizations are in a leading position to assist the nations of the developing world in various growth initiatives, much like other countries that have already fully embraced the realm of digital information. In turn, emerging countries stand to gain much from the assistance of these groups and their services. Some benefits that can potentially

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**Brooks** is the Senior Vice President of Sales and Marketing for EBSCO Information Services, Ipswich, MA 01938, USA; e-mail: sbrooks@epnet.com.

**Donovan** is the Vice President of Sales for Europe for EBSCO Information Services, Ipswich, MA 01938, USA; e-mail: pdonovan@epnet.com.

**Rumble** is the Vice President of Sales for Asia, Australia, and Africa for EBSCO Information Services, Ipswich, MA 01938, USA; e-mail: crumble@epnet.com.

come from access to such a broad swath of information resources include a wider educational scope (i.e., increased access to thousands of STM journals for colleges and universities in many nations), improved international communications/relations, and an overall greater standing in the world of nations.

The expansion of access to digital information in the developing world also has a reciprocal effect for the information publishers involved. As more and more users in emerging countries are exposed to the individual journal titles and other sources made available through aggregated databases, the publishers of those sources benefit from the increased exposure to their content. As a result, more publishers participate in database initiatives, and the quantity and quality of information sources continue to increase for the benefit of the end users.

### Definitions of Developing Nation and Digital Divide

Before proceeding, two concepts (*developing nation* and *digital divide*) must be clearly defined so as to avoid ambiguity. While the first concept is typically defined by economic and financial standards, for the purposes of this paper, *developing nation* (or other related phrases such as emerging countries) refers to a country where access to high-quality research information has historically ranged from being extremely limited to altogether non-existent. This definition is required when discussing the digital divide because a country's lack of information resources is not necessarily in direct proportion to its economic wealth or lack thereof. Some such countries may truly be considered "underdeveloped" in terms of the overall quality and quantity of information available to its citizens and researchers through academic institutions, hospitals, and other research centers.

The concept of the *digital divide* can be explained from two perspectives: (1) the existing gap between those countries that have ample access to electronic research information and those that do not, and (2) the difference in Internet literacy and aptitude between the citizens of "developed" versus "underdeveloped" countries. The latter scenario may actually be considered to be a direct result of the former. Allen Hammond observed that "the Internet may be changing everything for those who use it, but it is doing nothing for the 19 out of 20 people who still lack access."<sup>4</sup>

### Building a "Bridge" across the Digital Divide

The importance of finding appropriate solutions to the problem of the digital divide, as defined herein, cannot be overstated. Most of the countries and regions that comprise the "developing world" are falling far behind the more developed nations in many areas, with education ranking among the most notable. Drew Tiene assesses the situation in the following way:

One of the most unfortunate by-products of the digital divide is its negative impact on educational efforts throughout the developing world. Digital technologies

provide exciting new opportunities for students in the industrialised world to obtain large amounts of current information on almost any topic, to communicate their thoughts in dynamic new ways, and to work more efficiently than ever before possible. Without access to the benefits of ICT [Information and Communications Technology], students in less developed countries may fall even further behind their peers in other nations. One of the most unfortunate by-products of the digital divide is its negative impact on educational efforts throughout the developing world. Digital technologies provide exciting new opportunities for students in the industrialised world to obtain large amounts of current information on almost any topic, to communicate their thoughts in dynamic new ways, and to work more efficiently than ever before possible. Without access to the benefits of ICT [Information and Communications Technology], students in less developed countries may fall even further behind their peers in other nations.<sup>5</sup>

In order for those in the developing world to "catch up" to the more advanced nations of the industrialized world, educational resources must be improved. According to Duncan Campbell, "No developing country has made substantial progress in the information economy or achieved entry into global value chains in information and knowledge-based services without an educated, skilled workforce."<sup>6</sup> The irony is that while many emerging countries lack the strong economic bases needed to fund online information resources for their citizens, those same resources, once implemented, can go a long way toward improving the education of the people, and a better educated population is more likely to result in an improved economy.

### Challenges of Providing Electronic Information Resources to Developing Nations

While every nation and region has its own unique mix of challenges for providing researchers with quality electronic information, a number of themes are typically shared. Although situations and preferences differ from individual to individual, many of the library communities in developing regions tend to be rather conservative and are not readily accepting of new services and technology. Some communities are often cautious about making dramatic changes to their methods and operations, so innovation in the libraries of these countries typically proceeds at a slower pace than in other "developed" nations.

#### *Lack of Necessary Funding*

This resistance to change is not always without tangible grounds. Many of these countries face unique challenges that are not as prevalent in other regions of the world. As Tiene further states, "Probably the most critical challenge associated with the digital divide phenomenon is finding funding for projects."<sup>7</sup> Such a lack of funding can easily be viewed as one of the root causes of the divide upon which most of the other difficulties are often based. As many of

these countries suffer from impoverished or sluggish economies, they have a difficult time affording the necessary resources that would assist them in improving their educational systems. If citizens have better educational resources, countries can improve their overall economy through a well-educated workforce. An improved economy, therefore, would generate additional financial resources to expand access to digital information resources. This scenario is very much a vicious circle. These countries often have to depend upon a third party to facilitate and/or supply the necessary funds to initiate the process of growth and development.

To make matters worse, not only do many of these countries suffer from a lack of basic funding, but the cost of Internet access in the developing world is often significantly higher than that of more industrialized regions. "Of course, high costs discourage online access, so this situation is yet another critical aspect of the digital divide problem. Until the costs for Internet service can be reduced in poor countries, levels of online access are not likely to increase very significantly."<sup>8</sup> Even in some of the regions where they are able to scrape together the necessary funds to establish a basic infrastructure for Internet access, libraries are then left with no money to purchase the information resources that would benefit their researchers.

Sometimes this lack of funding is due to libraries and institutions being wholly dependent on their respective governments for financial support. Such funding is often barely enough to maintain basic library services and therefore not adequate to foster additional growth. Besides libraries in a given country having to share an insufficient amount of funding, these libraries are often unable to make any acquisitions without first having to negotiate a labyrinth of governmental red tape. That sort of obstacle can be an enormous deterrent to any library. Even if a library can muster the necessary funds to purchase a particular online resource, it may still face an uphill battle in having that purchase approved.

#### *Lack of Necessary Computer Skills*

Funding for infrastructure and digital resources is not the only obstacle in many developing nations. When a library establishes the means for accessing online services, the next hurdle is that many of the potential users lack the necessary computer and electronic research skills to properly utilize the new services. A large percentage of the population in developing countries have never even used a computer, let alone accessed information via the Internet.

In order to help facilitate the expansion of online access in the developing world, librarians and administrators would be well served to take full advantage of the training that is offered by the vendors and other organizations that facilitate access to online resources. Such training is often comprehensive, covering all aspects of the vendor's products and services. While this instruction will not typically cover basic computer/Internet skills, it will provide users with the tools that will allow them to evolve from Internet novices to savvy and confident online researchers.

#### *Lack of Necessary English-Language Proficiency*

Another significant obstacle to the dissemination of full-text information in developing nations is that most of the top databases and related services that are currently available are geared toward English-speaking users. The majority of the world's top research information is also written in English.

Database vendors can help to offset this imbalance by offering users of their services search screens written in users' native languages. While users would still be searching a predominantly English collection of information, they could be afforded the ease of crafting their search through an interface that feels more comfortable and familiar to them. For example, EBSCO makes its proprietary EBSCOhost<sup>®</sup> interface available in a number of languages to suit the individual needs of libraries in various countries. Available languages currently include Spanish, French, German, Italian, Brazilian, Portuguese, Japanese, Simplified Chinese, Traditional Chinese, Korean, and Russian, and this is expanding to include Arabic, Turkish, and other languages. Individual users can also translate the HTML Full Text, when available, into Spanish, French, German, or Portuguese.

On another positive note, this language barrier may be slowly starting to dissipate as many citizens of developing nations gain familiarity with the English language through an increased exposure to western media sources as well as the vast quantity of English-language materials freely available via the Internet. In addition, as vendors continue to partner with publishers to make more non-English content available through their services, the potential for such services to make an impact on the citizens of emerging countries increases substantially.

### **Solutions and the Parties Involved**

The various problems facing libraries and researchers in the developing world can only be solved by a collaborative effort involving a number of diverse parties. By forging new partnerships and reinforcing old ones, concerned organizations and individuals can create the necessary environment for growth and development to take place, resulting in enhanced global access to important digital information resources.

The following are examples of some of the more prominent individuals and organizations (vendors, societies, consortia, etc.) that have all contributed greatly to the expansion of online resources in emerging countries.

- countries and their governmental ministries of culture, education, science, technology, etc.;
- visionary librarians;
- organizations and consortia;
- scholarly publishers and societies; and
- full-text database vendor (e.g., EBSCO).

This list is by no means exhaustive, as listing every individual or organization involved would be impractical and nearly impossible. The following descriptions

provide basic background information on specific people and organizations comprising the general categories outlined above, along with concise summaries of their involvement in developing nation initiatives and their impact on global research.

#### *Countries and Their Governmental Ministries*

As the ongoing funding for electronic information resources in developing nations is often provided (at least in part) by government ministries/agencies, the administrative bodies of local regions/countries often play a leading role in the move toward acquiring and disseminating improved information resources via online services.

Poland's Deputy Minister of Science, Dr. Jan Krzysztof Frąckowiak (Undersecretary of State and Secretary of the State Committee for Scientific Research), commented that "the eIFL project, through which EBSCO Publishing offers access to electronic versions of scientific databases, is one of a few valuable initiatives in Poland for the benefit of widespread access to scholarly journals. It supports the work of the scientific community and the development of the information society in Poland. In the opinion of the users, the databases provided are featured by a clear catalogue structure and easy content searching."<sup>9</sup>

China is an excellent example of a country where a strong desire to expand access to electronic information resources, combined with the unwavering assistance and presence of a database vendor, yielded dramatic results of a positive nature. The appetite and market for information in the People's Republic of China (PRC—defined here as just the Mainland) is growing, perhaps more so than anywhere else in Asia. This is not surprising given the recent acceptance of the PRC into the World Trade Organization (WTO) and the experience witnessed in the other Chinese-speaking countries/territories of Hong Kong and Taiwan. Liberalization of the PRC economy has translated into liberalization of education. More importantly, the Chinese government recognizes the need for its students and researchers to compete globally and has greatly increased the amount of money spent by universities on computer and network infrastructure as well as databases.

Currently, more than three dozen major universities in the PRC are using EBSCO full-text databases. The majority of these universities access these databases through China Academic Library and Information System (CALIS), which is the largest and most well-known academic consortium in the country. CALIS includes the renowned Beijing and Tsing-Hua universities. In addition, the Chinese Academy of Social Sciences is also using EBSCO full-text databases. Many non-academic libraries are also expanding their resources to include these databases, such as the Shanghai and Shenzhen public libraries, and the Tianjin City medical board.

Over the next few years, universities in many of the lesser-developed provinces of China will also begin to access online full-text resources. For example, provincial consortia of academic libraries are now being formed by

EBSCO and CALIS in Hunan, Qinghai, and Xinjiang. In addition, Tibetan libraries are expected to join either the Qinghai or existing Yunnan consortium. Previously, CALIS and EBSCO had established database consortia in twenty-one other provinces. This growth follows a common pattern where the expansion of digital resources begins first in more urban and "developed" regions of a country before slowly spreading into less developed areas.

#### *Visionary Librarians*

The impetus for growth and change typically begins at the grassroots level. While the governments and ministries of countries frequently play a prominent role in the encouragement and support (including funding) of growth initiatives, the initial catalyst for such development is often found in a particular librarian (or group of librarians) that had the vision to realize the need for dramatic change. As the form of growth initiatives varies greatly throughout the developing world, so do the visionary individuals who play a leading role in such endeavors. Following are examples of three such librarians who have helped to expand access to digital information resources in their regions. These examples were chosen for the three distinct situations and perspectives that they represent and for the exemplary efforts that they put forth.

Marika Meltsas, the Electronic Information Services and Head Librarian at Tartu University Library (part of the ELNET Consortium in Estonia), was one of the first librarians in her region to recognize the changing information needs of her patrons and the challenges that those changes presented. She was at the forefront of implementing electronic resources in the area, as well as instrumental in organizing the libraries in Estonia into a national consortium for the purpose of purchasing these resources. This was one of the first national consortia in the region for electronic databases. Today, the Estonian national consortium is alive and well and a strong member of the eIFL project (discussed subsequently). Through Ms. Meltsas' efforts and the involvement in eIFL, Estonian libraries now enjoy many of the same resources as the best Western European libraries.

Mr. Jan Andrzej Nikisch, president of the Board for the Poznan Foundation of Scientific Libraries in Poland, recognized the need for electronic resources and the opportunities that the eIFL project presented in helping him realize these goals. In this regard, Mr. Nikisch played a large role in organizing funding from the government so as to bring these resources into Poland. Once the funding was secure, he continued to monitor the needs of the library community and augment the database offerings to accommodate any special requirements and adjust to the changing needs.

Dr. Hana Nová, head of the periodicals department at the National Library of the Czech Republic, played a key role in consolidating the resources that were purchased by institutions in her country and as a result helped to reduce any redundant purchases. She also assisted the Czech Republic in positioning itself better so as to negotiate the most favorable prices with participating vendors (e.g.,

EBSCO). Through this process, she helped to educate the library community as to which research tools were available, as well as which databases offered the greatest value and best addressed the needs of their libraries.

These three are representative of many other librarians who have contributed in a substantial way to the initial and ongoing expansion of digital information resources in their respective countries/regions. Without the aid of such visionaries, many of the growth initiatives in the developing world would not have obtained the same levels of success that they have achieved thus far.

#### *Organizations and Consortia: The International Network for the Availability of Scientific Publications (INASP)*

INASP was established in 1992 by the International Council for Science (ICSU) with the intent of improving access to information and knowledge in developing nations. As cooperative network of partners, its mission is to enhance the flow of information within and between countries, especially those with less developed systems of publication and dissemination.<sup>10</sup> The main objective of INASP is "to enable worldwide access to information and knowledge with particular emphasis on the needs of developing and transitional countries. [INASP] works with partners and networks around the world to encourage the creation and production of information, to promote sustainable and equitable access to information, to foster collaboration and networking, and to strengthen local capacities to manage and use information and knowledge."<sup>11</sup>

INASP has completed phases of the Programme for the Enhancement of Research Information (PERI). This important initiative is designed to provide wider access to and dissemination of scientific and scholarly information and knowledge to and from developing and transitional countries. PERI and EBSCO have worked together to offer "four of the world's largest scholarly full-text databases, additional general and subject-specific full-text databases, as well as popular bibliographic databases."<sup>12</sup> The first phases of this program benefit researchers and appropriately affiliated professionals in many countries, including Ghana, Kenya, Malawi, Mozambique, Tanzania, Uganda, and other nations in Africa, Asia, and Central America. All researchers, academics, scholars, affiliated professionals, and librarians in these countries have gained access to thousands of full-text, scholarly journals. David Dorman adds that "access to the journal content is free for the participating libraries and researchers."<sup>13</sup>

#### *Electronic Information for Libraries (eIFL)*

Another important organization that has contributed greatly to the dissemination of digital research information in developing regions over the past six years is eIFL. As an independent foundation, eIFL serves as an intermediary between information vendors and the libraries that they serve. This organization strives to support libraries and their researchers in transitioning and developing countries by providing them with the

guidance that they need in order to take part fully in the world of electronic information resources. eIFL's principal aim is to help negotiate affordable database/resource subscriptions on a multi-country consortial basis, as well as providing additional support for emerging national library consortia in the regions covered by the organization. Currently, eIFL serves a total population of approximately eight hundred million people through its work with over twenty-two hundred libraries in more than forty countries.<sup>14</sup>

According to its Web site, "eIFL started in October 1999, as an initiative of the Open Society Institute (OSI), a private grant-making and operating foundation, part of the Soros Foundation network. In the 1990s, OSI made significant investment in library development and modernisation in the countries of its network, especially in the post-socialist countries of Central and Eastern Europe as well as the former Soviet Union."<sup>15</sup> In 2002, eIFL became an independent foundation. The foundation is still supported in part by OSI and is currently seeking additional sources of ongoing funding for its initiatives. The eIFL Foundation will continue to provide advice and support for participating national consortia as well as assist in the establishment of new, emerging consortia in other countries.

As part of the original eIFL initiative, libraries in thirty-nine countries gained access to a wealth of electronic full-text scholarly journals. At the outset of the project, countries in the consortium ("the largest information consortium in the world")<sup>16</sup> included twenty-seven from Central and Eastern Europe (including the former Soviet Union), ten from Southern Africa, Guatemala, and Haiti. All academic, research (non-corporate), medical, national, and public libraries in these countries were welcome to join the consortium.

eIFL consultants unanimously selected EBSCO's full-text databases as the "most comprehensive service available on the market."<sup>17</sup> At that time, the databases contained three thousand full-text periodicals, with 1990 as the earliest date of coverage. Now, just a few years later, the collection has grown to include more than ten thousand full-text serials with hundreds of those same titles providing coverage dating back to 1965 or earlier.<sup>18</sup>

A sign that the work of eIFL is succeeding is found in the fact that most of the local library communities served by eIFL are now taking a more active role in the coordination of access, promotion, training, fund-raising, and payments for the electronic resources that they access. Now that eIFL no longer has to manage such details for existing consortia, the organization has a new primary objective of helping to fund and support new library consortia in emerging countries. The ultimate goal for these new consortia is that they will eventually be able to ensure their own long-term access to and efficient use of the electronic resources that they require. While eIFL does not provide ongoing financial support for the long-term subscription goals of established consortia, the organization does plan to continue offering grants to emerging consortia to help with the initial start up and operational costs for the first year or so of service.<sup>19</sup>

*Scholarly Publishers and Societies*

By making their information available via aggregated databases and other services, publishers of scholarly journals are able to expand their readership to include researchers in developing regions that previously had little to no access to such content. This access benefits the people of emerging countries in that they can often increase their collection of journals from a handful of print titles to a wide variety of high-end publications. Participation in full-text initiatives also provides the publishers with a number of benefits, including increased exposure to their titles. Such exposure can lead to potentially higher impact factors for those titles, greater worldwide recognition for their content, and the potential for an increase in individual print or electronic journal subscriptions. Because of these potential benefits, more and more publishers seek to take part in such database initiatives.

The following are examples of some of the publishers and societies that have gone to great lengths to make their information more readily available to potential users in the developing world through participation in full-text database initiatives:

Academy of Management  
 Administrative Science Quarterly  
 American Economic Association  
 American Marketing Association  
 American Institute of Physics  
 American Society of Civil Engineers  
 BC Decker  
 Blackwell Publishing  
 Brill Academic Publishing  
 Canadian Academic Accounting Association  
 Carfax Publishing  
 Duke University Press  
 Edinburgh University Press  
 Frank Cass and Company  
 Harvard Business School Publishing  
 Industrial and Labor Relations Review  
 Institute of Electrical Engineers  
 IOS Press  
 John Wiley and Sons  
 Lawrence Erlbaum Associates  
 Marcel Dekker  
 Mary Ann Liebert, Inc.  
 M.E. Sharpe, Inc.  
 MIS Quarterly  
 The MIT Press  
 Ohio State University Press  
 Psychology Press

Routledge Ltd.

Society for Industrial and Applied Mathematics (SIAM)

Swets and Zeitlinger Publishers, BV

Taylor and Francis Group

Transaction Publishers

University of Toronto Press

VSP International Science Publishers

Walter de Gruyter GmbH and Co. KG.

Westburn Publishers

World Scientific Publishing Company

*A Full-Text Database Vendor: EBSCO Publishing (EBSCO)*

EBSCO Information Services is the world's largest intermediary (subscription agent, database aggregator, etc.) between publishers and libraries. As a result, the company stands in a unique position to aid in the dissemination of digital information resources throughout the developing world. As the provider of many research databases that lie at the center of most electronic information initiatives in emerging countries, EBSCO Publishing has forged solid relationships with all parties involved in the growth process. For example, the company's online research databases are the products of long-term partnerships with the world's top information publishers. In addition, EBSCO has worked closely with the leading organizations and societies that strive to enhance access to digital information in the developing world.

In 1999, the company became the first provider of electronic full-text journals (via its databases) to nearly forty developing nations through a cooperative effort with the Open Society Institute (OSI) and its eIFL project. The financial support from the Open Society Institute allowed for a tremendous breakthrough and lasted from September 1999 through December 2000. During this period of time, the eIFL project was launched and gained irreversible momentum towards providing greater information access for all participating countries and their libraries. In conjunction with the start of the project, EBSCO initiated an aggressive training plan that included full-time trainers and part-time trainers throughout the regions involved.

In order to properly train and assist as many potential database users as possible, EBSCO hired a number of dedicated trainers to organize and lead an extensive schedule of training sessions throughout the eIFL countries. These training sessions were coordinated with the help of the individual country coordinators of eIFL. Central training centers were set up in the most populated regions of each country and served as the primary hubs for providing training to the majority of users. Additional training sessions were offered at regional conferences as well as a number of individual institutions (e.g., large universities). Training sessions varied greatly with regard to the material covered due to the diverse backgrounds of the attendees in each region.

Topics covered ranged from the most basic computer skills and search concepts (keyword, Boolean, etc.) to more advanced searching and linking techniques. While the majority of such training sessions were held at the outset of the eIFL project, EBSCO continues to provide ongoing training to eIFL members on an as needed basis.

As of January 2001, EBSCO's role in this process expanded even further as the company established direct relationships with many of the ministries of culture, education, science and technology, and others in the countries that had been involved in the original OSI/eIFL project. EBSCO also simultaneously opened offices in both China and India (two countries that were not included in other projects), and soon after began talks with another influential organization (INASP) with the goal of further advancing the availability of full-text research databases in additional developing countries. Through cooperation with INASP and the PERI project, EBSCO databases then became available in all universities and hospitals in even more emerging countries. Further, the efforts of EBSCO's personnel in both China and India have resulted in greatly increased exposure to information in these nations.

One of the best ways for libraries and other institutions in developing regions to increase their access to scholarly content is through subscriptions to aggregated full-text databases. Such subscriptions provide researchers in "information-starved" countries with an enormous measure of high-quality content at an exceptional value. While aggregated full-text databases should never be used as a direct replacement for existing print subscriptions,<sup>20</sup> they can be of great benefit to institutions in economically challenged regions where the cost to subscribe to even a modest number of individual print and/or e-journal subscriptions is highly prohibitive. For large academic libraries in developed regions, aggregated full-text databases provide supplemental content that helps to round out existing collections, whereas in emerging nations such databases often serve as the primary means of access to scholarly information. When a library cannot afford to maintain even the most rudimentary print journal collections, a subscription to a comprehensive, aggregated full-text database may be the best solution to its information needs. A library in a developing nation can literally see its journal access grow from ten print titles held locally to over ten thousand electronic titles via an aggregated database. In general, the value of a full-text database is in direct proportion to the quantity and quality of previously unavailable unique content that it brings to a library/institution.

Pertinent examples of the type of comprehensive electronic resources offered by database aggregators and available nationwide in dozens of developing countries are Academic Search® Premier and Business Source® Premier. These databases provide users with access to vast collections of diverse sources of information including many of the world's top STM journals. Such a rich collection of timely research

information is often a welcome addition to libraries in the developing world where access to this sort of information had previously been either highly limited or absent altogether.

### **Benefits of Digital Resources: Understanding and Training**

The demand for digital information resources in developing nations may initially be relatively low. Often the libraries and their researchers are somewhat unfamiliar with the information available via aggregated databases and may fail to realize the benefits of a broad array of quality information. There are a number of potential solutions to this problem.

In many regions, libraries have benefited from the assistance of the regional consortia and other societies that strive to help make digital information resources available to the people of developing countries. In addition to occasionally providing financial assistance, organizations such as these play a pivotal role in the education of librarians and end-users as to the importance of having access to the latest electronic research information. By working closely with digital information vendors, these organizations have made great strides in demonstrating the value of such services to potential users in the developing world and have also worked to obtain favorable cost arrangements to help make the services available to those libraries that have emaciated budgets. Furthermore, by providing ongoing training and support to the libraries of developing nations, these organizations help to ensure that access to and usage of important digital resources never falters.

One particular way in which these organizations and vendors have been able to help expand the availability of electronic research databases to the developing world is by reaching out to the end-users themselves in order to illustrate the full value of such resources. Even if library administrators and other facilitators are unable or unwilling to explore the potential benefits afforded by electronic research databases, end-users, once they have understood the full scope of the available information, have often been able to successfully lobby for the necessary resources. This sort of grassroots campaign is often the best way to help those in emerging countries understand the potential of the electronic resources that are available to them.

An example of extensive vendor training helping the research populace to hone their online research skills is found in Russia. Over the past few years since EBSCO databases were first made available to researchers in Russia (by way of the eIFL project), the company has conducted numerous and extensive training sessions in order to reach out to as many potential users as possible. Some of the cities where training was provided include Moscow, St. Petersburg, Samara, Ekaterinburg, Ufa, Novosibirsk, Vladivostok, Kaliningrad, Irkutsk, Krasnoyarsk, Rostov-on-Don, Saratov, Kazan, Barnaul, Omsk, Tomsk, Novgorod, and Saransk. With such a

large and diverse geography, such training can be daunting, but not impossible.

EBSCO's ongoing training efforts have had a notably positive impact on researchers in Russia. Initially, many libraries and librarians were not ready for these new kinds of services. Many people had (and still have) difficulties with the English language, as well as rudimentary problems working with computers and the Internet. A few years ago, almost no one in the Russian library community knew anything about EBSCO's products (or any other online databases for that matter) and what they are used for. Now, after several years of training and support, all of the largest libraries and universities in the country are aware of the importance of these resources and know how to use them.

The director of the Scientific Library of St. Petersburg State University has summed up the progress in Russia by stating that "for the last ten years Russian libraries and universities were unable to receive foreign scientific information. With the help of EBSCO databases we now have access to the most important archive of full-text academic information. This information is absolutely necessary for our students, aspirants and professors and for the proper high education in Russia."<sup>21</sup>

When concerned organizations band together to institute comprehensive training programs for users in the developing world, they help to ensure that such users are in a position to maximize their usage and obtain the greatest possible value from the services provided. Proper training also allows librarians in affected countries to become more independent and self-sufficient. Those librarians are then able to provide ongoing training for new users in their regions with less involvement from vendors and other organizations. Such self-sufficiency reflects one of the ultimate goals of projects such as PERI and eIFL and is a definitive sign of success in the applicable region.

Before the people of developing countries embrace the concept of digital information resources, they first need to understand how such services will enrich their lives. Once they realize the full potential of the resources available to them and initiate a subscription, they often require whatever applicable training will help them to utilize such resources. Vendors and other related organizations should be ready and able to assist in both matters, so that emerging nations can take full advantage of the resources available to them.

## Conclusion

In order for technology to yield benefits to developing nations, it must first be properly established. This undertaking requires the joint effort of many participants including, but not limited to, individual librarians, regional library consortia, governmental ministries, scholarly publishers, and database producers like EBSCO. By banding together in specific growth initiatives, individuals and organizations can bring a wealth of knowledge to the people of the developing world that will potentially enrich the lives

of all who gain access. These partnerships are examples of how reaching across national and cultural boundaries to effect change in developing regions is fundamental to successfully bridging the gaps (digital, cultural, financial) that still separate many countries of the world.

## Notes

1. Sam Brooks (sbrooks@epnet.com) is the Senior Vice President of Sales & Marketing for EBSCO Information Services, the world's largest intermediary between libraries and publishers of journals and magazines. During the last fifteen years, Mr. Brooks has worked with libraries in every corner of the globe, visited institutions in more than eighty countries, and worked extensively with ministries of education, ministries of science and technology, and ministries of culture in developing nations. In addition to authoring papers in peer-reviewed library science journals, he has been published in the library publications of more than a dozen countries and has participated in panel discussions or appeared as the keynote speaker at many library conferences, including ACRL Chapter Meetings, IFLA, The Charleston Conference, ALCTS Networked Resources and Metadata Committee Meeting, International Congress of Information, LITA Technology and Access Committee Meeting, NLA Tri-Round Table (Technical Services, Information & Technology), and many others. Mr. Brooks is active in the development of database resources for EBSCO and acts as a primary liaison between EBSCO's customers, various library advisory boards, and EBSCO's development teams.
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