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Guest Editorial

Technology and its impact on the information environment and society in developing countries

Abebe Rorissa
Department of Information Studies, University at Albany, State University of New York, USA
Email: arorissa@albany.edu

In the last issue of the Pakistan Journal of Library & Information Science, John Richardson (2011) wrote a very eloquent editorial piece about the role information technology plays in the dynamic changes to the field of library and information science. In view of the fact that so much of what happens in today's information environment (from the creation/generation of information in all its forms to its dissemination and use) is mainly technology driven, I thought it worthwhile to focus, once again, on technology and its impact on the information professions, information environment, and society as a whole vis-à-vis developing countries. Although the user should be the central focus of any information environment, users' information seeking and use behaviors as well as the generation/creation of information and culture by authors, artists, musicians, etc., are influenced by, for the most part, the technology available and/or accessible to them. Significant events and revolutions in the history of information, from cave paintings to digital information, were a result of innovations in information technologies such as ink, papyrus, mechanical movable type, telephones, computers, and the Internet. Of course these innovations had impacts beyond the confines of the information environment, some more so than others, but I will limit my piece to their impact on the information environment and society in developing countries. An information environment, for the purpose of this piece, is any entity or system that contains people, information sources, and technology and where these three interact to create process, manage, disseminate, and use information.

We often hear phrases such as "global village" and "information superhighway" as a metaphor for the shrinking of time and space due to the use of modern information and communication technologies such as the Internet by people in almost every corner of the globe to disseminate and exchange information at a much faster rate than ever before. It is also often said that we live in the information age, the latest of the three waves as coined by Alvin Toffler, namely the agricultural revolution, the industrial revolution, and the information age. According to Toffler (1980), each new wave, in chronological order, took much less time than its predecessor. Whereas the agricultural revolution took place over thousands of years, the industrial revolution and the information age took place over hundreds and tens of years, respectively. It is important to note that Toffler (1980) had the Western and/or developed world in mind when he wrote his book.

Today, a bright spot for developing countries is that the rate of adoption of information and communication technologies is faster than that of the developed world (Miniwatts Marketing Group, 2012). In the case of most developing countries, the transition from the agricultural revolution/society straight to the information age/society (skipping the industrial revolution/society) is nothing short of a quantum leap thanks in no small part to the ubiquity of mobile technologies and access to networks, including social networks. The miniaturization, increased power -"the average smart phone today has more computing

power than Apollo 11" (Stengel, 2012) - and decreased cost of these devices as well as their connectivity means that not only are they affordable, but they can also be used for various purposes from money transfer by users in Africa (The power of mobile money, 2009) to organizing protests that toppled powerful governments (Egypt's revolution, 2011; Shirky, 2011).

Another area of technology affecting the information environment and society in developing countries is the "open movement" which enabled users, including those from developing countries, access to, among others, open source software (Câmara & Fonseca, 2007), open access resources (Davis & Walters, 2011), and open education (Clobridge, 2012). Anyone and/or any organization with the required connectivity can: (a) access the latest software to increase task efficiency and effectiveness; or (b) tap into a wealth of information resources to satisfy her/his and/or its users' information need and improve the quality and currency of her/his research and/or its services; or (c) get a world class education at all levels and gain knowledge to advance her/his career.

Of course all these advantages come with a caveat: information environments and society in developing countries still face a number of challenges. There is a critical need for trained information professionals who can keep up with a rapidly growing population and, in turn, a rapidly growing number of information users and consumers with access to mobile technologies such as smart phones. In addition, LIS education in developing countries faces a number of challenges from various fronts: human resources (staffing at LIS schools is inadequate and their level of training is not advanced; there is constant brain drain), information and communication technology (ICT) (both lack of ICT infrastructure and its rapid growth rate), curriculum (in terms of scope and variety of courses as well as quality), other facilities, and the level of support from governments and parent institutions/universities of LIS schools. Without a well trained workforce of information professionals equipped with the knowledge, skills, and dispositions necessary for the 21st century, economic and social development of developing countries will slow even more as the world moves further to an increasingly information and knowledge economy and society.

Having said all this, I very much prefer these challenges to those I faced a few decades ago when most of Africa was trying to transition into the industrial age.

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