Chapter 51

Library Science and Technology in a Changing World

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ABSTRACT

As the world changes, so does information and its use. This chapter explains functions of library science as impacted by technology within the context of change. Library science provides the basis for mediation between the community and the information it needs to carry out its functions, tempered by the impact of technologies. Librarians apply library science principles as they develop and manage the community's information collection. In today's digital environment, the proliferation of information requires that librarians increasingly need to interpret, filter, and evaluate that information. Librarians apply library science-based technical processes to organize and optimize the efficient retrieval of the needed information. In addition, librarians foster information literacy in communities, largely serving as a responsive guide for all of its community members, not only for the purpose of pre-existing library comprising their catalogs and indexes, but the creation of new orders developed and made possible by the computer search capabilities. In these ways, library science is dynamic and facilitates change.

BACKGROUND

Today's world experiences expanding change. Technology accelerates change processes, not just because of technical advances but more fundamentally because of its impact on global and cyber space. Economic globalization has resulted in international education and workforces. As people of varying experiences and expectations learn and work together by necessity, they will encounter change more often and more quickly, and will need to exhibit more cognitive – and affective – flexibility. In addition, change now occurs on the micro or nano level, unperceivable at the level of most humans. Machines can make adjustments and self-corrections based on intelligent automated agents. At what point do such changes impact humans?

This changing world generates new information, which people often need to comprehend and use in order to deal with change. Over a generation ago, the 1991 Secretary's Commission on Achieving Necessary Skills (SCANS) report noted information location and manipulation as vital

skills for today's employees. In a digital world where the amount of information doubles every two years, adults need to evaluate resources carefully and determine how to use relevant information to solve problems and make wise decisions. Furthermore, it is no longer principally an issue of getting information: it's getting the right information at the right time to do things right and to do the right things.

One of the major factor facilitating – or forcing – change in the information world is technology (Wilhem, 2004). Digital storage and data manipulation has transformed business practices, aiding collaboration and streamlining supply and demand processes. Technology has the potential to collapse space and time, disseminating information and documentation at an incredible speed. Technology has also democratized communication to some degree, bypassing traditional selection and filtering processes to share all kinds of information and misinformation (Webber, 2005). Technology has also expanded the formats of communication. In some media, such as email, people do not have sound and visual cues to contextualize a message. In other cases, the use of Webinars offers opportunities for real-time communication that involves text, sound, images, and movement. However, these same advances have also given rise to the Digital Divide, as people have uneven access to these varieties of technology.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2003) as a whole has embraced information and communication technology, and is facilitating global discussion and efforts.

Everyone should be offered the opportunity to acquire the necessary skills in order to understand, participate actively in, and benefit fully from, the Information Society and the knowledge economy. Given the wide range of ICT [information and communication technology] specialists required at all levels, building the institutional capacities to collect, organize, store and share information and knowledge deserves special attention. Governments should develop comprehensive and forward-looking strategies to respond to the new human capacity needs, including the creation of an environment that supports information literacy, ICT literacy and life-long learning for the general public. (p. 6)

UNESCO's 2003 declaration summarizes the impact of technology on society, and highlights the role that library science needs to assume. Reitz (2012) defined library science as "the professional knowledge and skill with which recorded information is selected, acquired, organized, stored, maintained, retrieved, and disseminated to meet the needs of a specific clientele." Library science deals with ways to optimize the physical and intellectual access to information, which has changed drastically with technology advances. Even the definition of the library itself is under re-examination, with the term "information organization" sometimes used to designate the larger idea of an organized collection of recorded information created for access and use by a defined community. As informational media and administrative tools have expanded, thanks to technologies, the nature of libraries have also changed and expanded so that they might vary from a box of books carried by burro in a remote mountainous region to a virtual library access from any Internet-connected device. Furthermore, with the advent of technology, library science professionals need to demonstrate the following competences (American Library Association, 2009):

- Library science foundational knowledge.
- Expertise in information resources and their management.
- Expertise in the organization of recorded knowledge and information.
- Technological knowledge and skills.
- Expertise in reference and user services.

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