Challenges and Tips for Conducting Research and Developing Information Literacy

Using Search Engines and Online Databases

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What is Information Literacy?

Information literacy involves the ability to locate, use, manage, and synthesize information effectively for a variety of purposes (American Library Association, 1989). As noted in the overview of the S.O.S. for Information Literacy website (2006), "At no time in history has the ability to locate, organize, evaluate, manage and use information been more critical for today's learners" (para. 1). Many would also argue that such skills are just as significant for today's students at every educational level as they are for those working in nearly any field, and especially in distance education. The importance of developing and applying research skills is also evident in a number of standards promoted by different organizations such as the Association of College and Research Libraries Information Literacy Competency Standards (http://www.ala.org/ala/

mgrps/divs/acrl/standards/informationliteracycompetency.cfm), the Partnership for 21st Century Skills (http://www.p21.org/index.php), the International Society for Technology in Education (National Educational Technology Standards for teachers, students, and administrators, http://www.iste.org/standards.aspx), the International Association for K-12 Online Learning (iNACOL, http://www.inacol.org/research/nationalstandards/index.php), and the Common Core State Standards (http://www.corestandards.org/the-standards). Yet developing proficiency in information literacy is challenging. It is difficult not only because it involves working at the higher levels of Bloom's revised taxonomy which involves analysis, evaluation, and creation (Anderson et al., 2001), but also because aspects of it, such as conducting research using digital resources—search engines and online databases—are not foolproof.

Why is Conducting Research Using Search Engines and Online Databases Challenging?

Conducting research and locating, managing, and synthesizing one's findings are essential in our information-rich society. However, anyone who has done a search using an online search engine such as Google (http://www.google.com/) or Yahoo! (http://www.yahoo.com/) has likely learned that locating useful information can be tough. It is problematic not only because the results of the search may not be what one is looking for or is inaccurate, but also because the number of "results" found on a topic can be overwhelming. For example, the outcome of a simple search in Google of "information literacy" was about 7,690,000 results. Alternatively, the same search on Yahoo! yielded 26,600,000 results.

Google Scholar (http://scholar.google.com/), another search engine tool, provides the opportunity to search for scholarly sources such as journal articles, theses, abstracts, and court opinions. However, its relevance is debated (Howland, Wright, Howell, & Dickson, 2009). Even so, several librarians (e.g., Badke, 2009, Howland et al., 2009; Weiss, 2009) view it as a beneficial resource for conducting research, but it should not be the only tool used, as Badke (2009) asserts: "While [Google Scholar is] a tool with a large index, it's not comprehensive and should be seen as one resource among many" (p. 3).

Badke's quote is also applicable to online databases such as the Education Resources Information Center (ERIC, see http://www.eric.ed.gov/), which is free, or subscription-only databases such as LexisNexis Academic (see http://academic.lexisnexis.com/). These tools, most often used for academic research (e.g., research paper for a course) also offer an avenue for researching scholarly sources. However, they, too have limitations. One often has to conduct searches using several online databases to ensure one "captures" all of the relevant sources needed. Moreover, the sources are only as good as what the database indexes.

What are Some Tips for Conducting Better Searches?

There are several strategies one can employ to conduct better searches using search engines or online databases. Some are:

1. Become familiar with the search tool. A first step in conducting good searches is understanding how such tools collect and organize data, which is called "indexing," and how best to conduct searches using the tools. Most search engines and online databases provide this information freely—it just takes examining the resources on the tool's respective website. For instance, ERIC provides information about how it develops its collection (see http://

www.eric.ed.gov/ERICWebPortal/resources/html/about/collection_development_process.html), as well as searching in ERIC (see http://www.eric.ed.gov/WebHelp/Content/Searching%20ERIC.htm).

2. Identify and use appropriate search terms or "keywords." Consider the search terms or keywords you choose as your ticket to finding good information. However, one has to understand that the words one might think to use may not be the best ones for a particular topic or concept. Also, there might be other words used to describe the same concept. ERIC has a useful thesaurus that lists many of its search terms. For instance, for "information literacy," 14 other related terms are listed (see: http://eric.ed.gov/ERICWebPortal/gotoThesaurusDetail.do?term=Information+Literacy).
3. Use Boolean operators. Boolean operators, the use of "and," "or," and "not" as part of one's search terms can help one find more relevant information on a chosen topic. However, not all search tools use these in the same way—so again, become familiar with how the tool works.
4. Keep track of and organize your search terms and outcomes. Although most instructors or supervisors do not ask for a record of one's search terms for a research paper, it is a good idea to keep track of the search terms and outcomes of one's searches. Two helpful tools for accomplishing this are Zotero (http://www.zotero.org/), which is free, and RefWorks (http://www.refworks.com/).

- Get help from experts. Conducting research can be complicated especially when one finds an overwhelming amount—or too few (if the topic is too narrow)—resources on a topic. Librarians and media specialists in local and university libraries offer a wealth of knowledge about conducting research using a variety of digital tools. Do not be shy about asking for help. Given the changes in search tools and upgrades, it is important to ask for help when needed.

No matter which tool one uses, searches are only as good as: (1) access to the specific tool, (2) the keywords indexed within these tools, (3) the keywords utilized by individuals conducting searches of these tools, (4) the resources indexed within these various tools, and (5) the way in which the tool presents results. Finally, just as search engines and online databases are not foolproof, researchers conducting research are fallible, too (e.g., in interpreting which sources are good to use or not). As objective as one might strive to be, there are aspects to conducting research that are subjective which should be acknowledged. Moreover, clerical errors can happen, too.

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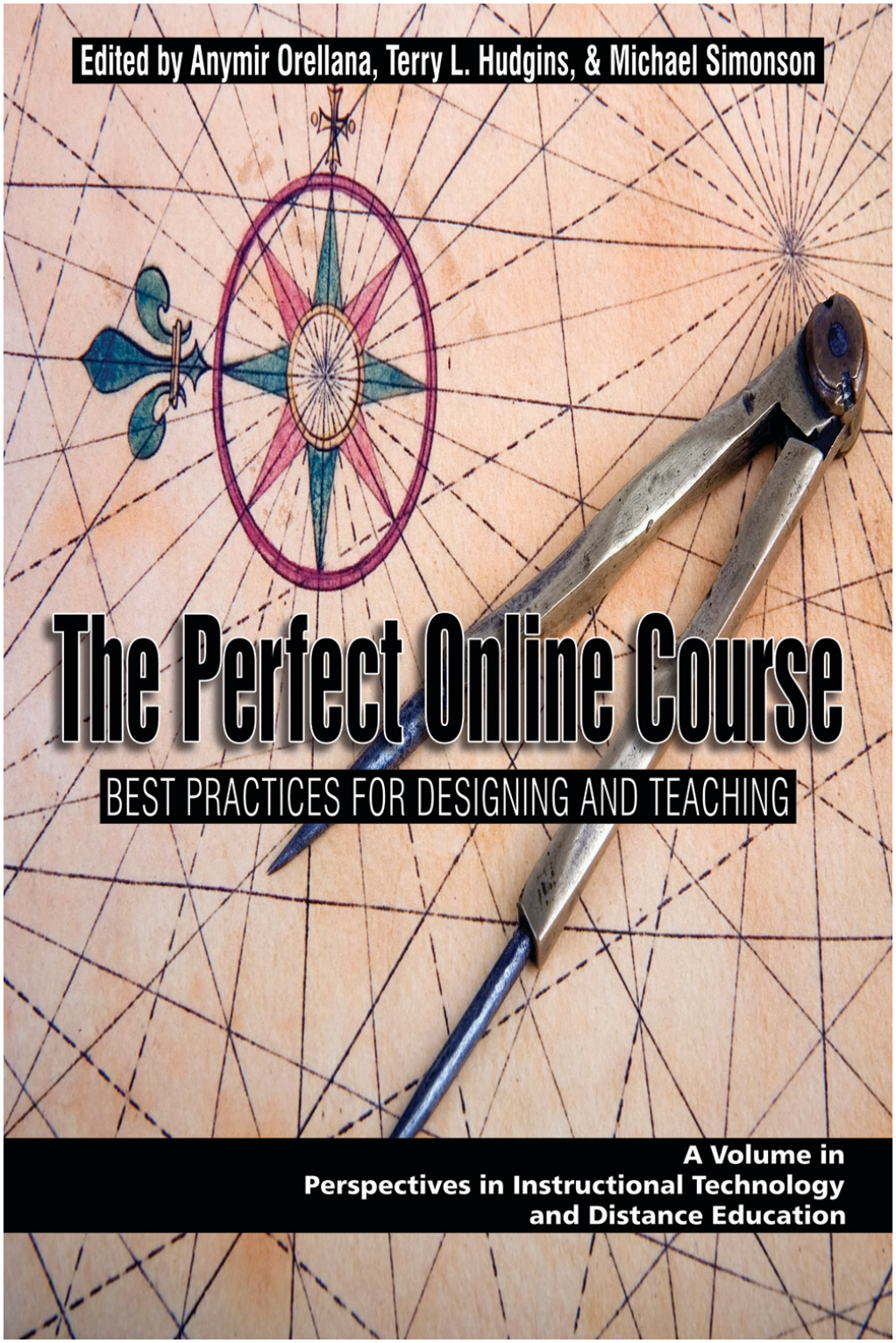

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