Chapter 20

Optimizing OERs for Optimal ICT Literacy in Higher Education

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ABSTRACT

Increasingly, faculty realize that the importance of digital resources, not only for textbooks but also other materials that can be accessed online. Of special note are Open Educational Resources (OER). These freely available digital resources may be retained, reused, revised, remixed, and redistributed as set forth by the content’s creator’s license. A solid ICT literacy foundation provides a broad academic base for their effective access and use. Discipline-specific ICT literacy offers students the opportunity to gain and practice in-depth knowledge and skills within one academic field. The first step in integrating ICT literacy is to examine program and course student outcomes, and then determine how technology tools fit into the kind of learning faculty want students to experience, aligned with learning objective and supported by the institution. OERs can include such technology tools and guidance on how to use them. The chapter will provide examples of ICT-enriched ways to integrate OERs into the curriculum to gain and demonstrate competency, using engineering education as an example.

INTRODUCTION

In order to be prepared for the workplace and lifelong self-development, today’s students need to be able to access, evaluate, use, manage, and communicate information in many formats effectively and responsibility; they need to be information literate. While technology has become more prevalent, its effective use, particularly in academic and workplace settings, is vastly uneven. Formal instruction by knowledgeable instructors is required. However, those instructors themselves need to be ICT (Information and Communications Technology) literate, and have the administrative infrastructure and support to implement such learning experiences. This chapter discusses ICT literacy as it applies to higher education, and suggests ways to incorporate ICT literacy into the curriculum, focusing on OERs and their support by MERLOT. These processes are shown operationalized in terms of engineering education.

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BACKGROUND

This era is sometimes labelled the Information Society or the Knowledge Society, reflecting how information drives economies and societal action. As early as the 1991 SCANS (Secretary’s Commission on Achieving Necessary Skills) report, governmental agencies have noted the need for employees who can: locate, interpret and organize information; communicate information; create documents; solve problems; work with a variety of technology; and know how to acquire new knowledge. To that end, then, people need to become ICT literate, herein defined as the ability to access, manage, integrate, evaluate, create, and communicate information purposefully, knowledgeable, technically, and ethically.

OERs

Textbooks can serve as a good starting point or reference tool for students. However, to address the various academic needs of students, as well as to affirm the richness and depth of the knowledge, skills and dispositions in curricula, teachers should complement and supplement textbooks with other resources in various formats. Of special note are Open Educational Resources (OER). These resources are usually digital in format, and are freely available at little or no cost. Just as importantly, they may be used without additional written permission; in fact, they may be retained, reused, revised, remixed, and redistributed as set forth by the content’s creator’s license (Wiley, 2014). Open Educational Resources (OER) offer a myriad of relevant learning objects to help students gain the knowledge needed to succeed.

Faculty can use OERs in several ways:

- Instructional aid;
- Introduction to concepts;
- Discussion starters: e.g., case studies, articles, videos;
- Required or optional reading to deepen understanding;
- Activity: e.g., simulations, drill and practice, research, production;
- Assessment.

ICT Literacy

Definition

Information literacy, as defined in 2015 by the Association of College and Research Libraries (ACRL), comprises “the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning” (p. 1). This definition emphasizes dynamism, flexibility, individual growth, and community learning.

Information literacy facilitates a major facet of higher education: providing students the means to become critical lifelong learners. Indeed, as students develop and practice these skills, their learning increases across academic domains. Testing a hypothesis can transfer to justifying a thesis statement, for instance. This same overall purpose, then, requires the collaboration of faculty, library and administration.