Improving K-12 Online Learning: Information Literacy Skills for Teacher Candidates

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ABSTRACT

Research indicates the need for teachers to be able to locate, evaluate, and use Internet resources in their teaching and learning processes. In addition, the Common Core State Standards require that students are able to think critically and know how to search and use alternative views and perspectives in their assignments. These skills are imperative for teachers and teacher candidates. This article reports the results of a study that sought to examine strategies used by teacher candidates when using Internet search engines, their ability to integrate the information they find into their own assignments, and use the acquired skills for future classroom use. The study employed a mixed-method approach in the collection and analysis of data gathered from a sample of 45 teacher candidates. Data sources included a survey, class assignments that required documentation of the search process as well as the located sources, and semi-structured interviews. Findings from the study revealed the need to teach teacher candidates how to conduct searches effectively, critically evaluate the sources, and integrate the information acquired from the online sources into professional and academic writing that models such behavior for their students. Suggestions for improvement of practice offered in this paper were piloted in one instructional technology course.

KEYWORDS
Common Core State Standards Critical Thinking Skills, Information Literacy, Instructional Technology, Search Operators, Web Evaluation

INTRODUCTION

Today, most K-12 teachers rely on online sources for instructional planning, learning activities, and research projects with students. Some teachers and their students rarely visit the brick-and-mortar library because they can access the online library databases, and many use search engines such as Google, Yahoo, Bing, and the like to access information and resources through the Internet. Over 80 percent of academic, public, and school libraries offer some form of Internet access (American Library Association, 2000) with thousands of full-text electronic journals and serials available online. Yet, most teachers and students, before they use the library databases, first search for information using the Internet search engines, most often Google (Griffiths & Brophy, 2005) to obtain an idea. Some rely entirely on Google and Wikipedia for all the information used in their teaching (Judd & Kennedy, 2011). Because of that, the Internet has been labeled as the “K-12 research tool” (Guinee, 2004). Though the number of online databases and other resources on the Internet continue to increase, the quality of and the effectiveness of the Internet and database searches do not (Brem & Boyes, 2000). Research indicates that while teachers are able to access information from the Internet, many fail to understand that not all the information gathered from online sources is reliable or effective for use in

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teaching and professional writing (Menchen-Trivino & Hargittai, 2011). Even those teachers who do locate good instructional materials online have trouble understanding how to critically evaluate and incorporate the information they find into their teaching and professional writing (Howard, Serviss & Rodrique, 2010).

A review of the literature on information literacy revealed a need for critical thinking skills for online or digital information literacy, that is searching for information online and applying the information obtained from the search in teaching and learning. Also discussed in past research is the need for a clear definition of online or digital information literacy and what it means for different groups of learners.

**Critical Thinking Skills for Searching and Applying Information Obtained from the Internet or World Wide Web**

Critical thinking is one of the skills that 21st century learners need to succeed in the world where new information is generated every second through online media. Today, students live in the age where anyone can post information on the Internet, and most of the information accessible online is not validated or verified for “accuracy” through scholarly means (Izci, Barrow, Thornhill, 2013; Walraven, Brand-Gruwel, & Boshuizen, 2009). Therefore, important for teachers and teacher candidates to not only possess such skills, but also be able to teach their own students such skills and strategies especially the use of Internet sources. With this being said, teacher candidates need to be prepared to teach their students critical thinking skills as required by the Common Core State Standards. Facione (2010) argues that critical thinking is not just memorization, and there is no single definition of critical thinking. For this reason, critical thinking skills or strategies required to engage in effective online searches are not ‘a means to an end,’ rather a way to expand the process of critical thinking.

Critical thinking does not focus on the subject matter or content known, rather it focuses on the processes one uses when reasoning about content (Facione, 2010). The process of reasoning or arriving at evidence-based conclusion requires that one uses multiple sources of information that are reputable and can be verified. When evaluating information from online sources, one has to question the sources chosen, and how and why the sources have been selected.

Higher-level questioning is one way that leads to critical thinking (Ladbrook & Probert, 2011) however, this type is lacking in K-12 education (Daines, 1986; Good, Slavings, Harel & Emerson, 1987; Tienken, Goldberg & DiRocco, 2010). When higher-level questioning is applied to searching for information on the Internet, it leads to alternative perspectives, analysis of the origins of the sources of information, evidence based supported arguments, and increase in cognitive gains for K-12 students. In addition to questioning, critical thinking involves metacognition or a reflective process (Brem & Boyes, 2000; Butler & Wynne, 1995). The reflective process revolves around the following elements: discovery and understanding, analysis, evaluation, synthesis, and application. These elements align with “information literacy skills” that include the ability to “locate,” “evaluate,” and “use” information effectively (American Library Association (ALA), 2000).

**Defining Information Literacy in 21st Century**

The definition for information literacy transforms continuously to keep up with the societal changes brought by communication and information technologies (ICTs) and online learning. In 1989, the American Library Association (ALA) extended the following definition for information literacy:
Differences between Visual Style and Verbal Style Learners in Learning English
Chiu-Jung Chen (2014). *International Journal of Distance Education Technologies* (pp. 91-104).
www.igi-global.com/article/differences-between-visual-style-and-verbal-style-learners-in-learning-english/111229?camid=4v1a