The Effect of a Situated Learning Environment in a Distance Education Information Literacy Course☆

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ABSTRACT

Teaching based on situated learning theory employs techniques that enable learners to experience a concept within the circumstance in which it would most likely be useful, and is presumed to facilitate transfer of knowledge from the instructional situation to its application to environments outside the classroom. The purpose of this experimental study is to investigate the efficacy of a situated learning environment for facilitating transfer during tasks requiring the evaluation of information in an online information literacy course. Eighty-five university students enrolled in a distance education library research course were randomly assigned to a situated learning condition or a control/traditional instruction group. Students assigned to the experimental group demonstrated transfer more often. A logistic regression analysis revealed that the grouping variable was a significant predictor of transfer. These results reveal that teaching models based on the principles of situated learning have the potential to facilitate transfer to real world contexts. The implications of this study may inform curricular decisions by providing evidence-based instructional design for instructors wishing to employ situated learning in order to teach for transfer, thus improving distance education courses in general, and library instruction in particular.

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INTRODUCTION

Situated cognition (SC), a theory that proposes that learning is inseparable from authentic activity, and cognitive apprenticeship (CA), a teaching strategy in which an "expert" (the teacher) models a skill while appropriately diminishing and then releasing support for a learner, are concerned with the idea that knowledge is, in part, a product of the environment in which it is learned. While situated learning models have rarely been examined in the distance education and library research literature, situated learning, and its related concept of CA have often been argued to be facilitative of transfer of knowledge, despite inconsistent results from empirical studies (discussed further below). Transfer of skills and concepts learned in school to outside contexts, such as the work place, is the primary concern of educators, parents and employers alike. Usable knowledge is more valuable than knowledge that is memorized, tested and then discarded.

The term situated learning refers to learning that takes place in the same context in which it is applied (Lave & Wenger, 1991). Learning a concept abstractedly, separate from an authentic context, makes it difficult for the learner to know when to apply the knowledge

to real-world situations (Brown, Collins, & Duguid, 1989). Brown et al. posit that conceptual knowledge evolves and changes meaning through interaction with its different uses in various situations and activities. Therefore, understanding the situated nature of cognition and applying the principles of cognitive apprenticeship have the potential to produce transferable knowledge. These principles include expert modeling, authentic activities, and facilitating the generalization of these activities so that they may be used in other situations. An authentic activity focuses on the process rather than the product of learning. They generally reflect situations that might be encountered in real life, include open-ended scenarios or questions, and are student-directed.

Many theoretical articles have examined the various ways in which situated learning lays the groundwork for transferable knowledge. Qualitative studies have described the learning processes at work in situated learning environments, while the few quantitative studies that have measured the efficacy of these environments have rarely demonstrated transfer to have occurred, even if situated learning has proved to increase post-test scores. Additionally, given the move toward distance learning in library instruction and higher education by extension, it seems imperative to investigate the efficacy of teaching strategies that can be employed online. Thus, the following study, which included 85 participants who were mostly female and mostly Education majors, examines the effects of a situated learning approach to teaching information evaluation in a distance education library research course conducted in spring and fall of 2013.

LITERATURE REVIEW

INFORMATION EVALUATION AND INFORMATION LITERACY

In their academic coursework, students are often asked to search for, locate, and evaluate information for research papers. Without explicit instruction these tasks can be difficult; consequently many academic libraries often offer instruction programs that include assignment-based instruction (also called "one-shot" classes), and credit-bearing library research courses, in which students are taught information literacy skills as well as library research skills. Information literacy is defined by the Association of Colleges and Research Libraries (ACRL) as the ability to "recognize when information is needed and … [the ability to] locate, evaluate, and use effectively the needed information" (Association of College & Research Libraries, 2000). These competencies are essential to successful lifelong learning and have implications across academic disciplines. Information evaluation is one of the overarching concepts taught in library instruction, and this knowledge is applicable to other classroom and real-world contexts. Therefore this study focuses on the evaluation of different sources of information (e.g., websites, articles, and books) that are appropriate for college level papers.

Information sources are typically evaluated on the following criteria: authority, timeliness, coverage/relevance, bias/credibility, and accuracy, although these criteria may vary depending on the material type (McMurdo, 1998). There are many straightforward methods by which to evaluate resources. However, as the World Wide Web has made a seemingly unlimited number of sources available via an easy-to-use search venue, the quality of sources used in research papers has declined in the college student population (Colón-Aguirre & Fleming-May, 2012; Griffiths & Brophy, 2005). Even when students do use Google, for example, to retrieve more scholarly resources for research, students still remain unsophisticated in their search, selection, and evaluation of materials appropriate for college papers (Georgas, 2015).

To remedy this issue some researchers have created checklists to help students and instructors evaluate information (Bird, McInerney, & Mohr, 2010). As librarians well know using incorrect information can have serious consequences, particularly in the sciences and medicine. Accordingly, these disciplines require specific criteria when judging the credibility of websites. Without instruction, students are often unable to appropriately evaluate the quality of a website, particularly if it is professionally designed and attractive in appearance.

SITUATED LEARNING AND INFORMATION LITERACY

Little research has been done to apply situated learning to library instruction or information literacy. While some academic librarians teach credit-bearing courses that focus on library research and information literacy skills, most instruction librarians traditionally teach for relatively brief and discrete periods of time during a one-time library instruction session. Therefore, even if academic librarians wish to implement active teaching approaches, these fleeting instructional interactions do not lend themselves to innovative teaching strategies such as problem-based learning (PBL) or flipped classrooms. Leibiger (2011), however, describes how one-shot library instruction can be transformed into an engaging and effective teaching and learning experience by employing PBL strategies grounded in the principles of situated learning. Academic librarians often teach assignment-based classes at the request of other faculty members; however, these sessions are often characterized by demonstrations and lecture with little opportunity for collaboration, feedback, or mentoring. Students tend to mirror the practices of their professors, with a focus on results as opposed to the process. Leibiger provides a model of problem-oriented learning for library instruction that focuses on the process of solving a hypothetical, yet realistic, problem that requires students to work together to search library resources, find a variety of materials, evaluate those sources, and use the information to derive a solution that can have many possible outcomes. In order to implement problem-based scenarios/assignments, Leibiger suggests collaboration between faculty and librarian to create a sustained opportunity for information literacy skills development embedded within situated learning environments. Because this study focuses on a credit-bearing class created and taught by the author, no such collaboration was necessary. Leibiger's model provides the basis for the curriculum used in this study. This model will be discussed in detail in the Methods section below.

DISTANCE EDUCATION AND SITUATED LEARNING ENVIRONMENTS

Because this study investigated situated learning environments in the context of distance education, it was necessary to explore how SC is employed in DL. The literature on SC/CA environments used in distance education emphasizes authentic teaching approaches over the mode of delivery, however very little actual research has been conducted on this topic.

Herrington, Reeves, and Oliver (2006) state that a key to successful distance learning is the provision of activities that are relevant to students. Authentic activities, further defined, require (1) ill-defined tasks, (2) tasks that require sub-tasks, (3) tasks that require time over a period of days, weeks or months, rather than short discrete minutes of time, (4) tasks that require multiple perspectives using different types of resources, (5) tasks that may be integrated into different subject areas, (6) tasks that allow for reflection and perhaps collaboration, and (7) tasks that may have a variety of outcomes or solutions. Because online classes can remove the learner further from real-world environments, careful design of instruction is necessary in order to create an effective curriculum.

TRANSFER

The study of SC is concerned primarily with whether knowledge transfers. Accordingly, Brown et al. (1989) suggest that the situated nature of cognition has the potential to provide "usable, robust knowledge" (p. 32). They argue that cognitive apprenticeship models of teaching that integrate learning into an authentic activity ought to illustrate to the student how to use that knowledge beyond the context in which it is learned. Therefore, situated meanings are essential to knowledge acquisition; otherwise, learning is either too general or too specific to be useful (Gee, 1997).

Transfer can be measured by distance or amount. In this study, I differentiate between near and far transfer by assessing both. Learning occurs when the student can demonstrate the knowledge they have been exposed to on another occasion. Near transfer, for example, occurs when, through extensive and varied practice in different contexts, the knowledge learned becomes automatic and with little difficulty applied in a new yet similar situation. This type of transfer will often occur on tests as students have practiced the skill or knowledge through homework and classwork. Far transfer is more difficult to achieve. It is characterized by "mindful abstraction" meaning that the learner deliberately decontextualizes an idea, for example, and transforms its original use to be applicable in the new situation (Salomon & Perkins, 1989, p. 124). Thus the learner must identify the potential of the idea, skill, procedure, or strategy for use in a different context from which it was originally learned.

It is important to note that transfer can't be achieved spontaneously; rather the instructor must negotiate the "needed processes of abstraction and connection making" (Perkins & Salomon, 1988, p. 28). Teaching for transfer can be aided by teaching a concept in a context that resembles a situation of potential application in the real world. For example, a lesson in which students read archival newspaper articles from the Civil War period and then are taught to evaluate the content based on what they know about the historical period can provide a bridge to learning to evaluate current representations of important world events in the media.