Assignment 2
Literature Review

by
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Methods of Inquiry

Introduction

The amount of existing research in the field of content self-efficacy for learners in web-based training (WBT) environments seems to be limited, if not non-existent. Much of the existing research focuses on online education as part of an academic setting, despite the fact that WBT settings may be quite different than academic settings. Web-based training is typically more individual based, rather than collaborative (with a facilitator or instructor as part of an online classroom). Although the setting may differ, many of the principles of self-efficacy appear applicable to WBT in the same manner as they are for other learning settings. This research study will further the knowledge base already existing on learner content self-efficacy by expanding the research into WBT.

Analysis & Discussion

Ever since the concept of self-efficacy was popularized by Albert Bandura, researchers have studied self-efficacy from numerous perspectives—investigating how self-efficacy differs for general purposes and specific tasks (Schwoerer, May, Hollensbe, & Mencl, 2005); exploring how general and specific self-efficacy may be shaped or modified (Gist & Mitchell, 1992); and exploring how learning online affects the success/failure of online learners (Saddé, He, & Kira, in press). Each of these studies yielded results that support Bandura's self-efficacy theory. Other researchers have used self-efficacy as a means of identifying causes for learners who appear to be struggling (Alfassi, 2003; Margolis & McCabe, 2004; Protheroe, 2004). The advent of online education has introduced additional variables into the learner-success equation, primarily that of computer technology. Additional researchers have explored how computer technology affects self-efficacy (Francescato, Porcelli, Mebane, Cudetta, Klobas, & Renzi, 2006; Joo, Bong, & Choi, 2000; McFarland & Hamilton, 2006; Whipp & Chiarelli, 2004).

Although there is an abundance of existing research on the self-efficacy of learners, the research settings have overwhelmingly been academic in nature, with only a minimal number having been conducted in training (corporate/technical) settings. This research study will use a WBT setting to investigate how WBT, as an instructional technology, affects content self-efficacy, in the context of pre-existing learner self-efficacy, self-efficacy that is fostered by the WBT, and compared self-efficacy of learners in instructor-led classrooms among learners in a professional setting who are required to complete training using web-based courses. Using foundational self-efficacy concepts, including results of general and specific self-efficacy research, along with existing research from classroom-based and online education (academic setting) self-efficacy research studies, this study will expand the existing knowledge base.

A Review of Self-Efficacy Theory

Self-efficacy is an individual's perception of his or her own potential to complete a task. Those who perceive they can complete the task with little to no challenge are considered to have high self-efficacy. On the other hand, those who perceive they can not complete the task because the task appears too challenging are considered to have low self-efficacy (Bandura, 1994).

Part of the research on self-efficacy has been questions about where self-efficacy comes from or what influences an individual's self-efficacy. Four primary influences are generally accepted (Bandura, 1994; Davis, Fedor, Parsons, & Herold, 2000). The first is mastery-level successes. Learners who succeed in tasks that are challenging and result in a level of skill mastery often experience an increased self-efficacy for performing that task. The second is vicarious experiences or observations of others. When an individual observes someone who they respect (a social model) perform a task, the results that the model achieves directly relate to the self-efficacy of the individual. Thus, if a model succeeds in the task, the individual's self-

efficacy may increase. Whereas if a model fails in the task, the individual's self-efficacy may decrease. The third is persuasion or verbal reinforcement from a social model. When an individual receives encouragement from a social model that he or she can complete the task, then the individual's self-efficacy may increase. Similar to observing a social model fail, a social model that discourages an individual may result in the individual's self-efficacy decreasing. The fourth is related to an individual's physical abilities and emotional stability. For tasks that require physical activities and endurance, the amount of aches and fatigue the individual endures may impact self-efficacy. Less ache and fatigue may help increase self-efficacy, whereas more ache and fatigue may decrease self-efficacy. Emotional stability relates closely to physical ability in that positive emotions may help increase self-efficacy, whereas negative emotions may decrease self-efficacy (Bandura, 1994).

Each of these four influences appears applicable to learners in WBT settings. As more specific research is reviewed, the research questions for the present study begin to present themselves.

General and Specific Self-Efficacy

Pajares (1996) and Schwoerer et al. (2005) discuss the difference between general and specific self-efficacy. General self-efficacy (GSE), which is an overall perception of one's capability to succeed, is often difficult to measure or leads to obscure results that are difficult to interpret. Specific self-efficacy (SSE), which is a narrowed-down perception of one's capability to succeed, typically results in clearer data and understanding of the learner.

To illustrate this concept of GSE versus SSE, a comparison of a learner's perceived capability of success to learn can be used. The learner's GSE to learn may be high, meaning the learner is confident he or she will complete the semester; however, this measure does not

communicate to what degree (grade point average) the learner will complete the semester. An SSE measure would be to assess the learner's self-efficacy of each specific course he or she is enrolled in. The learner's SSE towards a literature course may be low, whereas the SSE towards a mathematics class may be high. If the learner's GSE was the only assessment, then the SSEs would be missed, thus the learner's low self-efficacy for literature would not be identified and the learner could potentially continue to struggle.

With the additional dimensions of WBT (i.e. individualized learning and computer technology) it is important for researchers to analyze specific tasks of learners in WBT settings. A general measure of self-efficacy may lead to an observation of low self-efficacy, when in fact; the learner struggled with the computer technology, but was successful with the content-matter and the individualized learning experience.

Self-Efficacy in the Traditional Classroom

The self-efficacy of learners in traditional classroom settings has been the focus of much of the educational research on self-efficacy. Margolis & McCabe (2004) and Protheroe (2004) offer observations of and suggestions for working with struggling learners. They suggest that teachers have the opportunity to foster improved self-efficacy in learners through "linking new work to recent successes, teaching needed learning strategies, reinforcing effort and persistence, stressing peer modeling, teaching struggling learners to make facilitative attributions, and helping them identify or create personally important goals" (Margolis & McCabe, 2004, p. 241). Their list of suggestions follows Bandura's explanation of sources of self-efficacy, particularly vicarious experiences and reinforcement by peers and models. Protheroe (2004) furthers the understanding of causes of low self-efficacy by describing how (a) lack of relevance, (b) fear of

failure, (c) peer concern, (d) learning problems, (e) lack of challenge, (f) desire for attention, (g) emotional distress, and (h) expression of anger influence learners.

An online learner in a WBT setting typically does not have a teacher, instructor, or facilitator to observe him or her. Thus, the learner has only the training setting (system) to rely on for feedback. Perhaps this is an opportunity for artificial intelligence to be incorporated into WBT, but this is beyond the scope of this research study.

Alfassi (2003) conducted a research study that investigated how instructional design techniques for traditional classroom learners influence learner self-efficacy. Two groups of learners were compared. The experimental group (37 learners) was enrolled in a curriculum that was designed specifically for the research study. The control group (15 learners) was enrolled in the existing curriculum for struggling learners. The instructional design for the experimental group included design methodologies that support a heutagogical (learner-centered) learning environment, whereas the control group environment was more pedagogical. Alfassi concluded "that learner centered academic structured programs are a viable form of school intervention for students at academic risk whose self-efficacy beliefs seem low and debilitating" (Alfassi, 2003, p. 38). The researcher further concluded that schools have an opportunity to build self-efficacy through instructional design methods that focus on a learner-centered approach.

The instructional design of WBT is the basis of the training and, therefore, may be a way for WBT to offer means that support and foster the self-efficacy of the learners. Instructional designers who are versed in understanding the principles of self-efficacy and have reviewed the existing research may be able to incorporate techniques into WBT just as teachers can observe and offer feedback to learners in a classroom.

Self-Efficacy in Online Education

Moving education from a traditional classroom to an online environment may increase the potential for low self-efficacy. Academic institutions have begun an almost paradigmatic shift from being solely classroom-based to adopting either blended online and classroom-based education or transitioning to fully online educational environments. This is a dramatic change for both the learner and the institution as familiar practices for learning and teaching may no longer work in the new environment. For the learner, this could potentially be a negative influence on his or her level of self-efficacy (Adkins & Nitsch, 2005; Lammintakanen & Rissanen, 2005; Watkins, 2005).

Online learners in academic settings face similar challenges that classroom-based learners do, with the addition of challenges that come with self-regulated learning and technology. Whipp and Chiarelli (2004) posited to explore "how successful learners in web-based courses self-regulate their learning" (p. 5). They investigated the techniques that six graduate students used in their studies, inquiring specifically into (a) how learners modified their learning techniques in web-based settings; (b) what kind of self-efficacy building techniques are offered by the course; and (c) what kind of environmental affects are caused by the web-based setting. The researchers found that web-based learners made adaptations to their learning techniques; both the technological and communications aspects of the course affected self-efficacy; and environmental aspects such as courseware interaction and course design positively affect performance.

Whipp and Chiarelli's study offers the prime base of research for the present study. The primary difference between the two studies is the audience. Whipp and Chiarelli used learners who were part of a graduate degree program—an educational setting. The present study focuses

on learners who are not in an educational setting; rather they are in a WBT setting. The same

general questions will be posited for learners in a WBT setting.

<div align="center">Conclusion</div>

The existing research on self-efficacy provides a thorough base for the present study on

the content self-efficacy of learners in WBT settings—primarily, the research investigating how

confidence in the instructional technology affects performance and how learners adjust their

learning methods in web-based learning as part of education programs or curriculums (Joo et al.,

2000; Whipp & Chiarelli, 2004). This study expands the subject of learner self-efficacy by

investigating how WBT environments (instructional settings that do not include instructors,

academic peers, or other instructional support) affect learner content self-efficacy.

Research Questions

The primary research questions of the present study are: (a) do learners possess content

self-efficacy, or confidence in themselves to perform tasks, in WBT environments; (b) can WBT,

as an instructional technology, foster content self-efficacy in learners who seem to be struggling;

and (c) how does the content self-efficacy of learners in WBT environments compare to that of

learners in traditional instructor-led training classrooms?

As education and training further adopt media as technologies for instruction, more and

more variables to learner performance are introduced. It is important that industry professionals

fully understand how training is impacted and recognize the changes that need to be made to

ensure instructionally sound material is being developed. Although this study does not fully

cover all perceived changes to the instructional setting, it does offer insight as to how learners

perform in web-based courses and how professionals may apply equivalent self-efficacy building

methods into their web-based courses.

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