



Review

The effect of reflective activities on instrumental learning in adult work-related education: A critical review of the empirical research



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ABSTRACT

Structured learning events termed reflective activities are now widely used throughout work-related learning. These activities are thought to occasion reflection, critical reflection and reflective practice. Although researchers have established benefits and outcomes associated with reflective activities in work-related *communicative* learning contexts, the effect of reflective activities in work-related *instrumental* learning contexts is largely unknown. Stakeholders remain dependent on contradictory and conceptual suppositions to justify their use of these activities. This article reviews empirical studies examining the relationship between reflective activities and instrumental learning outcomes with adult learners. Prominent adult learning theories are assessed for relevant predictions. Consequently, empirical studies examining skill-adaptation as a theoretically predicted outcome are examined. This review found few empirical studies with sufficient methodological controls to establish causal or correlative relationships between reflective activities and instrumental learning outcomes—including skill-adaptation. Conceptual discoveries are extended to expedite future investigations of this issue.

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Over the past two decades perhaps nothing has captivated work-related adult education like reflective activities. These structured learning events, thought to occasion such distinct phenomena as reflection, critical reflection and reflective practice, are now commonplace in continuing professional education courses and workshops (Boud, 2010; Boud & Walker, 1998; Fook, 2010), initial in-service professional education courses (Warhurst, 2008) and various career and technical education settings for novice learners (Cooper, 2006; Hegarty, 2011; Kozolanka, 1995; Reese, 2011). Increasingly, these activities assume diverse forms: log, diary, and journal writing (Bolton, 2002; Clegg, Tan, & Saeidi, 2002; Moon, 2001); videotape self-analysis (Broyles, Epler, & Waknine, 2011; Marita, Leena, & Tarja, 1999; Welsch & Devlin, 2006); dialogue (Fazio, 2009; Graves & Jones, 2008; Nyaumwe & Mtetwa, 2011); imaginative self-spectatorship (Collier, 2010) and spiritual analysis (Hunt, 2010).

Reflective activities' popularity likely stems from the value stakeholders place on their putative targets: reflection, critical reflection and reflective practice. Reflection, for instance, has been termed an education panacea (Burton, 2000) and an accepted and institutionalized process in nursing education (Mackintosh, 1998). Similarly, in teacher education reflection has been described as something so fashionable that courses omitting it are viewed as operating outside the educational mainstream (Cornford, 2002). Critical reflection, too, has been praised as a pivotal process for improving skill transfer (Sellin, 2003) and a way to “feed the roots of lifelong learning” in skills-based vocational programs (Marr & Rose-Adams, 2010). Reflective practice has been described as an indispensable methodology of professional development (Brookfield, 1995; Schön, 1983, 1987) and an innovative and beneficial addition to competency-based employee training (James & Mulcahy, 2000).

Although it is premature to extend comprehensive definitions of these phenomena, several are offered here as a preliminary guide. Moon (2004) defines reflection as,

A form of mental processing—like a form of thinking—that we may use to fulfill a purpose or to achieve some anticipated outcome or we may simply “be reflective” and then an outcome can be unexpected. Reflection is applied to relatively complicated, ill-structured ideas for which there is not an obvious solution and is largely based on the further processing of knowledge and understanding that we already possess. (p. 82)

Critical reflection, on the other hand, has been defined as a process of identifying, examining and questioning assumptions underlying how one understands experience (Merriam, Caffarella, & Baumgartner, 2007). When either process is continuously applied to professional practice, a person engages in what is commonly referred to as reflective practice. Educators wishing to occasion any of these three phenomena use structured learning events referred to here as reflective activities.

While much of adult work-related learning embraces these activities unquestionably, educators continue to implement skills-based or competency-based curriculum. Consider these examples: hands-on practical workshops and clinical updates in chiropractic medicine (Bolton, 2002), continuing medical education for surgical techniques (Perera, LoGerfo, Shulenberger, Ylvisaker, & Kirz, 1983; Rogers, Elstein, & Bordage, 2001), skills-based continuing education for the construction trades (see <http://www.utah.gov/ce-public/>), and standardized skills-based career and technical education for employment and lifelong learning (Waters et al., 2004).

Such learning, which Mezirow (1990, 1991, 2000) described as learning how to do something or how to perform, is traditionally referred to in adult education as *instrumental learning*. When engaged in this process, learners test and re-test their theories of action to generate knowledge, solve problems and improve performance using hypothetical-deductive reasoning. One can succinctly conceptualize instrumental learning as a process of task-oriented problem solving, hypothetical-deductive reasoning and environmental manipulation for increased performance, prediction and technical achievement. This process is necessary for learning various demonstrable work-related skills, such as designing automobiles, diagnosing diseases, building bridges and forecasting the weather (Mezirow, 2009). It is distinguished from *communicative learning*, the process by which learners attempt to understand the meaning of what others communicate, concerning ideas such as values, principles, feelings and moral decisions (Mezirow, 1990). When engaged in communicative learning, learners use analogic abductive reasoning to construct analogies from known to unknown to inform speculations and develop reasonable explanations for phenomena.

Although researchers have demonstrated how reflective activities affect learning outcomes in work-related *communicative* contexts (see Fook & Gardner, 2007; Ruth-Sahd, 2003), few have demonstrated their effect in *instrumental* contexts. If adults use unique reasoning strategies in these situations, how are these strategies affected? Are learners better able to test and re-test their theories in new situations, generating new knowledge and subsequently improving performance? Can reflective activities help learners meet core competencies aligned with instrumental learning?

Contradictory and largely conceptual suppositions abound. Moon (1999) has noted how researchers disagree over reflective practice's role in interpretive or instrumental investigations. Mezirow (2000), for example, has stated that critically reflecting on instrumental learning processes or content can improve performance. Van Woerkom (2004), too, has suggested that critical reflection in workplace learning may increase flexible applications of instrumentally learned skills and knowledge. Boud (2010), on the other hand, has argued that one should perhaps reject the use of reflection in instrumental or exclusively procedural learning. Boud and Walker (1998), questioning the link between planned reflective processes and learning, have claimed that reflective activities yield few useful outcomes on cognitively-oriented examinations—a common format for procedural skills or technical knowledge assessment.

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