Thinking Skills and Creativity 21 (2016) 158–168

Contents lists available at ScienceDirect

Thinking Skills and Creativity

journal homepage: http://www.elsevier.com/locate/tsc

Closing the assessment loop on critical thinking: The challenges of multidimensional testing and low test-taking motivation

D. Alan Bensley*, Crystal Rainey, Michael P. Murtagh, Jennifer A. Flinn, Christopher Maschiocchi, Paul C. Bernhardt, Stephanie Kuehne

Frostburg State University, Frostburg, MD 21532, United States

ARTICLE INFO

Article history:
Received 21 December 2015
Received in revised form 19 May 2016
Accepted 27 June 2016
Available online 28 June 2016

Keywords:
Critical thinking skills
Critical thinking dispositions
Metacognitive monitoring
Test-taking motivation
Learning outcomes assessment

ABSTRACT

Unlike most previous studies that have only assessed critical thinking skills, our study took a comprehensive approach to critical thinking assessment. We examined the impact of explicit critical thinking instruction on skill acquisition as well as changes in critical thinking dispositions and metacognition. Students receiving explicit critical thinking instruction showed significantly greater gains on an argument analysis skills test than students in a control class. In addition, only the skills test scores of the critical thinking group were significantly correlated with metacognitive measures after instruction. However, the critical thinking group showed no greater gains on measures of critical thinking dispositions. To examine another neglected aspect of critical thinking research, we manipulated students' test-taking motivation before assessment, but our manipulation produced no significant gains in test-taking motivation or critical thinking skills. Nevertheless, test-taking motivation was significantly correlated with scores on the critical thinking skills test both before and after instruction and declined significantly in the control group. Our results suggest that future studies should further examine the impact of explicit critical thinking instruction on critical thinking skills, dispositions, and metacognition and identify ways to raise low test-taking motivation.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

1.1. Multi-dimensional assessment of critical thinking

Educators and experts on learning outcomes assessment (LOA) have recognized the importance of assessing critical thinking as an outcome of higher education (e.g., Banta, 2002; Kurfis, 1988). Comprehensive assessment of critical thinking (CT) is challenging, due to CT being a multidimensional construct that includes skills in reasoning, decision making, and problem solving (Willingham, 2007) as well as dispositions for thinking critically and a metacognitive component for monitoring and regulating thinking (Bensley, 2011; Halpern, 1998). Many studies have reported effective interventions for improving the CT skills of psychology students (e.g., Bensley, Crowe, Bernhardt, Buckner, & Allman, 2010; Bensley & Haynes, 1995; Burke, Sears, Kraus, & Roberts-Cady, 2014; Nieto & Saiz, 2008; Penningroth, Despain, & Gray, 2007; Solon, 2007; see Abrami et al.,

* Corresponding author.
E-mail address: abensley@frostburg.edu (D.A. Bensley).

http://dx.doi.org/10.1016/j.tsc.2016.06.006
1871-1871/© 2016 Elsevier Ltd. All rights reserved.

2008 for a review of effective CT instruction in other fields). Yet, few LOA studies have investigated whether CT instruction also impacts dispositions and metacognition. Accordingly, the purpose of our LOA study was to comprehensively assess the impact of explicit CT instruction on CT skills, dispositions, and metacognition under varying conditions of test-taking motivation.

Metacognition is a central component of CT (Tarricone, 2011) and, therefore, LOA researchers should assess it. Metacognition is the knowledge and awareness of one's own thinking and cognitive processes that allows a person to regulate that thinking. If students inaccurately self-assess their CT skill levels and do not know when to use their CT skills, then they are less likely to think as effectively as their skill levels might indicate.

CT dispositions are another important component of CT that should be a part of its comprehensive assessment (Ennis, 1987; Facione, 1990a,b). CT dispositions are attitudes, traits, and tendencies that make it more likely that a person will engage in CT. Research supports that CT disposition is a separate dimension from CT skill (Clifford, Boufal, & Kurtz, 2004; Taub, 1997). Researchers in the area of CT commonly identify dispositions, such as open-mindedness (Ennis, 1987; Facione, 1990a,b; Halpern, 1998; Stanovich & West, 1997), fair-mindedness and objectivity (Baron, 2008; Paul, 1993), skepticism (Bensley & Murtagh, 2012; Perkins, Jay, & Tishman, 1993) and intellectual engagement and effort (Bensley & Murtagh, 2012; Halpern, 1998).

This suggests the need for comprehensive assessment of CT that includes measurement of skills, dispositions, and metacognition. We argue that without comprehensive assessment of CT, it is difficult to make good decisions about how to improve CT instruction and learning outcomes, that is, to close the assessment loop on CT. In this article, we first review the literature on CT assessment that illustrates the challenges and limitations, especially regarding the comprehensive assessment of CT instructional interventions. We also examine this research in relation to test-taking motivation, another factor that can affect the validity of CT assessment. Then, we report the results of a LOA study intended to comprehensively assess CT-related outcomes in students who have received explicit CT instruction versus those who have not, while also testing the effects of a manipulation designed to improve their test-taking motivation.

1.2. Research on assessment of critical thinking skills

Much of the research on CT has focused on skill acquisition in college students who have been assessed at the general education (institutional) level. The results from numerous outcome studies reviewed by Pascarella and Terrenzini (2005) suggest that colleges and universities may now be producing less improvement in CT skills than when they conducted their earlier review (Pascarella & Terrenzini, 1991). Likewise, a review of results from many colleges and universities using the Collegiate Learning Assessment found that after four years of college as many as 37% of all seniors showed no improvement in their CT skills and writing (Arum & Roksa, 2011).

These institutional studies are typically longitudinal in design, testing college students at the beginning of college and then again later, often in their senior year. Longitudinal studies are very useful in evaluating the summative outcomes of a program, but they do little to identify which specific components of CT instruction in a program lead to gains. Bensley and Murtagh (2012) recommended that departments use classroom assessment to assess students more often than just at the beginning and end of their program in order to acquire more information about the process of acquiring CT skills. They further recommended comparing students in courses that receive CT instruction to those in similar courses that do not. Accordingly, in the present study, we compared students from one course receiving explicit CT instruction to similar students in another course not receiving it.

Many studies demonstrating success in improving CT skills have used some form of explicit instruction; see Abrami et al. (2008) for a review. In psychology, two such studies (Nieto & Saiz, 2008; Solon, 2007) used explicit instruction based on Halpern (2003) that produced gains on the Cornell Test of Critical Thinking-Form Z, a test of general CT skills primarily assessing argument analysis skill. Solon (2007) found that after instruction a group of general psychology students receiving explicit instruction of CT skills infused into the course did significantly better on the Cornell Test of Critical Thinking than a similar control group studying the same content but not receiving the CT instruction. Moreover, the CT-instructed group performed as well as the control group on a test of general psychology, suggesting that the explicit CT instruction improved CT skills without negatively impacting acquisition of subject matter knowledge.

Other studies focusing on the ability to think critically in psychology have found that explicit instruction of CT skills was effective (e.g., Bensley et al., 2010; Bensley, Flinn, Murtagh, & Powell, 2011; Bensley & Haynes, 1995; Nieto & Saiz, 2008; Penningroth et al., 2007). The explicit CT skill instruction in many of these studies employed some common components, such as targeting specific CT skills, making CT rules and principles explicit through class assignments and exercises that provide practice and corrective feedback. Bensley et al. (2010) described this form of explicit CT instruction as "direct infusion" because it combines elements of direct instruction with infusion, an approach to teaching CT rules and principles along with regular course content instruction. For more information on direct infusion, see Bensley (2011).

The success of direct infusion and other forms of explicit instruction in promoting acquisition of CT skills influenced our department to develop a new CT course for beginning majors in our program, using direct infusion as an instructional framework (Bensley & Murtagh, 2012). Although CT is a multi-dimensional construct, few LOA studies have reported results for other CT dimensions besides CT skills, such as CT dispositions and metacognition, as discussed in the next section.

Download English Version:

https://daneshyari.com/en/article/375520

Download Persian Version:

https://daneshyari.com/article/375520

Daneshyari.com