Using Critical Reflection to effect Dispositional Change toward Critical Thinking and Gain Insight into Student Learning

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Using Critical Reflection to effect Dispositional Change toward Critical Thinking in a General Education Science Course

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Abstract: The purpose of this research roundtable is to discuss the use of Brookfield's Critical Incident Questionnaire to effect dispositional change in students toward critical thinking, gain greater instructor insight, and improve instruction. My preliminary, and future, work in this area derives from experience with undergraduate students taking a general education science course.

Key Words: Critical Incident Questionnaire, Critical Thinking, Disposition, Science

Context

A team of university educators created an integrated, general education, science course to facilitate the learning of basic scientific facts and processes, improve student critical thinking skills, and positively influence student dispositions toward science and critical thinking. Course instruction relies heavily on small group analysis of case studies and traditional lecture. On average, students have shown significant gains in critical thinking skills with improved dispositions toward science and critical thinking after taking the course (Gillespie, Koether, Lewis, 2017; Rowe, Gillespie, Harris, Koether, Shannon & Rose, 2015). Recent student interview responses have provided promising, though inconsistent, results regarding dispositions toward critical thinking (Koether, 2016, 2017). Many students, for instance, found their experience with the course to be novel, challenging, and helpful. For some, it upended their view of science and sparked significant changes in personal use of scientific content and critical thinking. For others, the course and content were merely a requirement for graduation. These results have prompted the use of more rigorous and varied assessments for discerning student dispositions and the improvement of instructional methods for engaging students in metacognitive processes.

Background & Purpose

After being exposed to literature on, and having experiences with, transformative learning theory, I saw the course and my instruction as a potential catalyst for transformation. While the

original course design was novel for general education science, it did not afford students with the opportunity to reflect on their learning nor fully include students as part of the learning process. As a result, I have employed Brookfield's (1995) Critical Incident Questionnaire (CIQ) in an effort to better effect dispositional change in students toward critical thinking, gain greater instructor insight into student learning, and improve instruction. The CIQ not only supports a transformative framework, but aligns well with course goals and practices. Students can anonymously reflect on their reactions with content, interactions with others, and surprises along the way. Student responses can then be used by the instructor to initiate group discourse, provide feedback, and adjust (or explain) instruction. The CIQ not only situates the student more squarely in the learning environment, but provides instructors with better insight into their students' learning and needs.

Discussion

The CIQ was designed to stimulate greater reflection by both students and instructors. While Brookfield's CIQ is used by many adult educators to encourage critical reflection and reflective practice, there is little research evaluating the CIQ as a tool for achieving such intended outcomes (Keefer, 2009). Implementation instructions and practices are critical components for success. In researching the use of the CIQ by instructors, outside of the literature by Brookfield, I found much of the knowledge to be tacit and practices varied. The roundtable discussion will focus on the use of Brookfield's CIQ as a component part of transformative learning. Participants will be asked to share their experiences with implementing the CIQ, or a similar instrument, in varied contexts and classroom settings.

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