



Fostering a creativity mindset in content area pre-service teachers through their use of literacy strategies



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ABSTRACT

This paper emerges from our longitudinal study exploring pre-service and beginning content area teachers' literacy practices in Eastern Canada. It describes how secondary mathematics, science, social studies, and other content area pre-service teachers used literacy strategies in their teaching. These strategies were learned during a course taught by the authors called *Literacy in the Content Areas*. We note the ways their inclusion of literacy strategies enabled pre-service teachers to approach their teaching more creatively and encouraged secondary students to be more creative in learning the content. Like Jeffrey and Craft (2004), we view these two aspects of creativity in teaching as integral to one another. We suggest the use of literacy strategies provides windows into pre-service teachers' creativity mindsets and their abilities to improvise within their own disciplines.

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1. Introduction

We were doing sexual reproduction and we had covered various topics under that scope so I wanted them [ninth grade students] to be able to see how everything was linked because we looked at it at the cellular level and then with animals and plants. . . I wanted them to see that although there are separate things about each, they're all interconnected. . . I wanted to see if, how, they would make those connections and there were a couple of different ways that they approached it, but all of them were correct. . . it was neat to see, how they made those connections. . . and how they worded things and the little drawings they found helpful to connect with the material. (Science and physical education pre-service teacher Mary,² May 1, 2013)

In this transcript excerpt, a pre-service teacher (PST), Mary, described her reasoning for using a mind mapping literacy strategy in her ninth grade science class as a way to foster student learning of a complex topic. Mary explained that the use of this strategy provided students with the opportunity to be creative and to show how they were making connections across a wide range of interrelated concepts.

This paper emerges from our longitudinal study exploring pre-service and beginning content area teachers' literacy practices in Eastern Canada. We did not begin this study expecting to write a paper about creativity but close reading of the data from interviews with PSTs and observations in their classrooms led us to believe there was something significant going on related to creative teaching and learning. We discuss how content area PSTs used literacy strategies which were

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learned during a course taught by the authors called *Literacy in the Content Areas*, and note both the ways their inclusion of literacy strategies enabled them to approach their teaching more creatively and how their approaches encouraged secondary students to be more creative in learning the content.

Like Jeffrey and Craft (2004), we view these two aspects of creativity in teaching as integral to one another. We suggest the use of literacy strategies provides windows into PSTs' creativity mindsets (O'Brien, 2012) and their abilities to improvise within their own disciplines (Sawyer, 2004).

Content area literacy refers to the ability to draw upon prior knowledge, general and specific content-related literacy practices to learn about new content in a subject area (McKenna & Robinson, 2014). Gee and Hayes (2011) noted that content area courses can help students master discourses particular to their disciplines. Recently, the term disciplinary literacies has been used to fine-tune this idea, acknowledging the particular literacies relevant to disciplines. For example, history students adopt the mindset of an historian in how they interact with texts (print, digital, media, visual and other) to learn course content (Gillis, 2014; Shanahan & Shanahan, 2014). We did not immediately connect creativity with these concepts, which are central to the *Literacy in the Content Areas* course. However, by the third year of our study of PSTs' use of literacy practices (2013) we realized how frequently many of them talked about creativity as a benefit of their more intentional infusion of literacy into their classrooms. We decided to pursue this idea further, as a focus of this paper.

2. A look into our *Literacy in the Content Areas* course

The authors teach sections of a course called *Literacy in the Content Areas* to approximately 30 PSTs each winter at our small Eastern Canadian university. Those enrolled in this course are soon-to-be high school teachers in content areas such as mathematics, sciences, social studies, art, English and physical education. The overarching course goal is to provide hands-on experience in use of literacy practices to create instructional environments that optimize content learning. Many of these PSTs do not have a strong background in literacy, as their expertise is in a variety of content disciplines. The course focuses on three main approaches that PSTs can adapt for use in their own teaching: (1) writing to learn (Daniels, Zemelman, & Steineke, 2007) using a variety of approaches like the mind maps used by Mary in the introductory vignette to encourage students to write, draw, or otherwise represent their evolving understanding of topics taught in particular subject areas; (2) metacognitive strategies such as think-alouds, embedded questions and process checks to enable high school students to become more proficient close readers of course materials; and (3) integration of multiliteracies into teaching with a focus on both consumption and production of visual, digital and media works, to scaffold student understanding of course concepts. A phrase often used in the course is "Reading is thinking," with its corollaries, "Drawing is thinking," "Writing is thinking," etc. The message that teachers can use literacy practices to improve high school students' comprehension of their subject is delivered through course activities such as Teachers Teaching Teachers. In this assignment, pairs of PSTs plan a lesson and engage the class in activities such as drawing and illustrating, making webpages, and multigenre projects (Allen & Swistak, 2004) to teach particular concepts from their disciplines. For example, mathematics PSTs have used RAFTs (Fisher & Frey, 2007) to teach about different types of fractions. Over the four years we have taught this course (2011–2014), we observed PSTs creatively modifying the activities for use in their teaching during practicum, as the vignette at the beginning of the paper illustrates.

3. The relationships between teaching creatively and teaching for creativity: disciplined improvisation and adaptability

Creativity as a concept or characteristic has social and economic implications (Craft, 2003; Sawyer, 2006), but defining it can be challenging (Sprague & Parsons, 2012). Numerous definitions of creativity abound (O'Brien, 2012; Plucker, Beghetto, & Dow, 2004) and part of the challenge in pinpointing it may be attributed to a popular myth, which upholds creativity as rare, elusive, and belonging to a small number of individuals (Plucker et al., 2004; Treffinger, Selby, & Schoonover, 2012).

Emerging research has documented creativity as more prevalent than originally theorized with evidence that suggests creativity may be observed in an individual as well as in group activities (Davis, Aruldoss, Mcnair, & Bizas, 2012; Treffinger, Schoonover, & Selby, 2013). Researchers also propose that creativity is not a static feature and that all individuals are potentially creative (Sawyer, 2012; Treffinger et al., 2012). Arguments for fostering creativity in classrooms propose that its inclusion deepens knowledge growth, informs innovation (Davis et al., 2012; McWilliam & Haukka, 2008), develops new scientific knowledge, and supports problem-based learning (Antink Meyer, 2012; Eyster, 2010) while also preparing learners for unknown and rapidly changing futures (ACARA, 2012; NACCCE, 1999; OECD, 1999; Parsons & Beauchamp, 2012). O'Brien (2012) developed the notion of a creativity mindset, joining the ongoing conversation about evolving understandings of the term creativity. As part of this discussion, O'Brien (2012) emphasizes the importance of teachers learning how to teach for creativity and defines a "creativity mindset" as informed by

Sophisticated perceptions of learning; a willingness to see teaching as a process of collaborative learning and the careful orchestration of multifaceted learning experiences in which the teacher is not always central; and most importantly, the kind of open-minded, open-hearted, courageous visions of self-as-teacher that casts the students into lead roles and teachers as occasional director and frequent understudy. (p. 331)

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