Chapter 41
Technology Integration and Innovation during Reflective Teaching

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ABSTRACT

With emerging innovations, the use of technology tools to make learning process effective is foreseeable. Hence, appropriate incorporation of technology can make a valuable contribution to the learning and undoubtedly reflection is core to learning. With today's twenty-first century learners, it is important that educators advocate integrating twenty-first century skills into their reflection activities. In Ray and Coulter's study (2008) on the use of blogs by teachers for reflective purposes, the authors conclude that "Teachers would benefit from combining the skills of technology and reflection," and that "these kinds of public technologies provide a way for teachers not only to analyze their own practice, but also to share their reflections with others" (p. 20). Teachers and students can now avail themselves of various online and computer-based applications in order to reflect on their learning. As technology integration process takes time and efforts, a systemic plan is required. This paper examines reflective teaching through concerted technology integration.

INTRODUCTION

"Reflection is central to all learning" (Bruner, 1960, p. 13) and the skills required of the reflective teacher and the individual attempting to become an independent learner are similar. Reflective teaching and learning practices have been leading meaningful educational change for many years (Dewey, 1933; Schöen, 1983; Loughran, 1996; Mezirow, 1990; Bartlett, 1990; Ross, 1989; Langer, 1997). In *Experience and Education,* Dewey (1998) stated that: "To reflect is to look back over what has been done so as to extract the net meanings which are the capital stock for intelligent dealing with further experiences. It is the heart of intellectual organization and of the disciplined mind" (p. 110). In the act of looking back, the individual examines what "has been experienced, and recreates the events, emotions, and happen-

ings of the situation" (Lowery, 2003, p.23) in order to deal effectively with future experiences. Reed and Bergenann (2001) state, "Reflective people continue the introspective process while they are actively pursuing information and clarification. Reflection is not difficult. Often it merely requires answering simple questions: What did I do? How do I feel? Why do I feel that way? What was the best thing that happened? Were there any things I could have done better? What would I do differently if I could do it again?" (p. 9).

Reflection then connects new learning experiences to previous learning and, ideally, results in the transformation of information into meaningful knowledge. "Reflection is seen as a process of reconstructing classroom enactments, including both cognitive and affective dimensions" and "to learn from reflection on experience" (Lowery, 2003, p. 23). This is reflection-on-action (Schon, 1983) or guided reflection and it leads to "greater student achievement and success in the classroom. Benefits from reflective teaching include increases in confidence, autonomy, and self-efficacy for teachers…students benefit by reflecting on their own learning to make sense" (Lowery, 2003, p. 29) of their discipline.

Teachers have assisted learners to reflect through the use of student journals, individual and group feedback sessions, case analyses, and other activities (Sparks-Langer and Colton, 1991). They have also provided opportunities for students to actively construct new learning through insights that they otherwise might not have made. One example of this is the use of question prompts and teacher affirmations such as "Why do you think that happens?" and "You can learn from what doesn't work for you." (Canning, 1991, p. 19).

Students today, however, are not yesterday's learners. "Today's youth are frequently creative, interactive, and media oriented; use Web 2.0 technologies in their everyday lives; and believe that more use of such technologies in school would lead to increased preparation and engagement" (Greenhow, Robelia & Hughes, 2009, p. 247). "Web 2.0 is linking people…people sharing, trading, and collaborating…" Wesch (2007) notes in his popular video, *Web 2.0…The Machine is Us/ing Us*, viewed by more than eleven million individuals on YouTube. "We'll need to rethink a few things", and among others, he lists "ourselves". Similarly, "Engage me! Engage me! We are digital learners" plead twenty-first century learners in a short, four-minute video also on YouTube titled, *A Vision of K-12 Students Today*. These students, digital natives who "expect to be able to create" (Nesbitt, 2007), demand the use of technologies that at times challenge the knowledge and skills of their teachers, digital immigrants (Prensky, 2001). Researchers are investigating the use of online technologies for reflective purposes. For example, Ray and Coulter (2008) examined teacher blogs for amount and depth of reflective content and concluded that blogs that delved deeper than descriptive accounts of experiences "could lead to changes in practice" (p. 6). Teachers and students can now avail themselves of various online and computer-based applications in order to reflect on their learning. This enables to hone further the education process, which is the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life (Baporikar, 2015).

TECHNOLOGIES FOR REFLECTION

Russell Rogers (2001) notes that implied in the various definitions of reflection are the notion of active engagement in the reflection process. Traditionally, reflective methods, such as journaling, questioning, portfolios, presentations, and role playing have been dominated by the spoken or written word and have not used technology. With today's twenty-first century learners, however, it is important that educators

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