Chapter 71
Transformational Shifts of Pedagogy Through Professional Development, Essential Questions, and Self-Directed Learning

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ABSTRACT

This chapter describes transformational experiences of a faculty of teachers during a yearlong action-research case-study of professional development, infused with digital technologies intended to capitalize on self-directed learning strategies, in the use of essential questions specifically designed to target critical thinking in students. Teachers who began to adopt the essence of essential questioning into their teaching practice also began to seek ways to engage in personalized self-directed learning as they looked for avenues to continue development of successful practice. The ability to self-investigate and self-delineate pedagogy was critical for most of participant teachers. The faculty of teachers involved in the action-research case-study demonstrated statistically significant growth on the Measure of Questioning Skills, indicating the experience encouraged teacher growth in questioning abilities. Research data also reflected statistically significant student growth in STAR Reading and STAR Math scores, and an increase in student's Measure of Questioning Skills.

INTRODUCTION

Educators have long worked to develop a delivery system of critical thinking. Lesson after lesson has been written with the hope students will be one experience closer toward evolving an intellect that becomes more dexterous with each passing year. However, as research and educational narrative have found, year after year, we find ourselves graduating students with weaker writing skills, weaker problem solving

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skills, and lacking critical thinking abilities (Almeida & Franco, 2011; Arum & Roksa, 2011; Brown et al., 2014; Carter & Harper, 2013; Schaw & Robinson, 2012; Smith & Szymanski, 2013). The idea of developing a firm and consistent grasp on critical thinking has felt somewhat akin to walking up to the ocean and trying to grab an armload of water. The fluid runs down our arms and settles back where it started leaving us empty handed.

Many educators solve this elusive problem by developing ways to encapsulate ideas and concepts into manageable presentations. Picture our original setting on the beach, with an ocean of knowledge before us. To help carry the information to our learners we grab a jar, scoop up the water and put a lid on it. Here we have a manageable portion of facts and information to show and study. When finished, we place the jar on the shelf for next year, and move on to the next. Lesson after lesson we present jar after jar of encapsulated facts and material. However, is that jar of water still *ocean*? Does it continue to retain the original characteristics of oceanic meaning? There are no waves, no tides, nothing that defines the fluid as *ocean*. It is water *from* the ocean, but not ocean. The contents of the jar will not become ocean again until we return to the beach and pour them back into the body of knowledge they were taken from.

Experiences in many classrooms can often be analogous to this scenario. Information can become so far removed from the authentic original form, it can lose inherent meaning. Essential questions are a pathway back to the heart of why we investigate and learn. They give meaning to facts, and create a thought process that encourages the individual to invest personal opinion synthesized from organic experiences. McTighe and Wiggins (2013) stated, "The ability to question is central to meaningful learning and intellectual achievement at high levels" (p. 18). Participants have opportunity to relate to various perspectives that may or may not be the same as theirs as they define and refine personal understanding.

Professional development, prepared and presented to educators with the intended purpose of enriching pedagogical skill with the ultimate aim of developing critical thinking in students, can also run the risk of being defined as encapsulated bits of information that do not make transformative changes in teaching behavior. Sappington, Pacha, Baker, and Gardner (2012) reported "evidence from 106 field studies suggested in the past 35 years little progress has been made to link professional development and school improvement" (p. 9). Educators receive the information removed from the nucleus of origin and void of implemented realities. "The biggest problem professional development encountered was that it was usually developed as an isolated requirement, with no real connection to daily teaching and with almost no teacher input" (Varela, 2012, p. 17). While the information is *from* the practice of teaching, or *about* improved pedagogy, it is not concrete and real until it is transferred into an educator's pedagogical schema and lived personal practice.

Application of new concepts and ideas require sustained effort, functional support and continued access to quality resources that nourish conceptual development. Self-directed learning strategies place the learner in a personal engagement with information and give the learner actualities beyond their own experience at a time and pace relevant to the needs of the individual. Slavit and McDuffie (2013) examined conditions that support teacher professional development and stated, "In considering the teachers' role as leaders in a change process, the contexts and interactions that comprise the focal points of change and teacher activity are important" (p. 94). Research by Slavit and McDuffie (2013) revealed the importance of "how teachers served as brokers in their own development process and how attitude, attention, and awareness played important roles in teacher learning" (p. 94).

This chapter will explore how teachers participating in a yearlong action-research case-study of professional development in essential questions, specifically targeted toward critical thinking, used digitally based self-directed learning strategies to define and refine a personal understanding of essential