Chapter 4
Technology and Teaching:
Technology and Student-Centered Pedagogy in 21st Century Classrooms

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ABSTRACT

Teachers at a technology diverse school explored ways to shift toward a more student- centered pedagogical practice. The project determined whether a shift in teacher practices could impact student engagement and success. The results were positive: many students had more academic success when student-centered learning activities were incorporated into their schooling. In theory, this means student learning that includes non-linear learning approaches can work in more generalizable settings than what have been expansively published in the current literature. In practice, the findings may help to inform schools dealing with current societal pressures to help their students find greater success through the use of pedagogically appropriate technology implementations and teacher support.

INTRODUCTION

The focus of this chapter is to explore an implementation of pedagogical approaches to teaching and learning in a technology diverse 9–12 school setting. In this school, the teachers recognized that the availability of technology created opportunities that would allow students to have more control over their learning. This has led to changes in their role; teachers no longer focused on content delivery but instead determined ways that students could develop greater ownership of their learning. Teacher-directed action research was used to determine the best ways the school can promote student success.

Teachers engage in professional reflective practice to improve their teaching, andto improve student learning. Some researchers believe that reflection involves a cycle of identifying problems, seeking solutions, testing solutions, and evaluating results (Murray, 2015). Other research suggests that reflection

does not necessarily occur in relation to a problem and can be an ongoing, informal process (McAlpine, Weston, Berthiaume, Fairbank-Roch, & Owen, 2004). Some literature described reflection-in-action as the reasoning done by competent practitioners who encounter unique situations (Schon, 1987). Practitioners draw upon general knowledge from their discipline and create connections to particular cases in order to make decisions on the spot. Accordingly, this reflection-in-action is what it means to "think like a teacher." Other authors argue that there are challenges when integrating theory and practice in complex and sometimes messy educational settings (Laurillard, 2012). Laurillard describes teaching as a design science, building principles of practice in order to achieve student learning. Building design knowledge of teaching requires teachers to reflect on teaching and learning, work collaboratively to share pedagogical knowledge, and implement new lesson designs. Professional reflective practice is one of the ways that teachers improve their teaching and attempt to improve student success.

In addition to reflective practice, other supports made available to teachers will be further explored. The ongoing need for mentorship and support of teachers in educational pedagogy change has been addressed in the literature (Steinke & Putman 2011). The professional reflective practice used by the school identified factors in three categories when introduced to a student-centered learning and technology-diverse environment: what the teachers were comfortable with, what they were not prepared for, and what they identified as requiring further and ongoing supports.

The school described in this chapter had a diverse student population in terms of academic abilities, family supports, and socio-economic status. Content was delivered in an online format through a learning management system (LMS). Teachers and students communicated online, face-to-face in weekly seminars, and on a student drop-in basis. Students were expected to connect with their teachers at least once a week to ensure that they stay current with their course work and to confirm they understand course concepts. The school was technology diverse with high expectations that the technology be used to enrich student learning. Teachers, administrators, and staff continually explored ways to use technology to support student success.

PROFESSIONAL REFLECTIVE PRACTICE QUESTIONS

This chapter presents a professional reflective practice of strategies and approaches designed to support teachers to thrive in a technology-diverse learning environment that is focused on student-centered learning. A key component contributing to the success of the school -is the partnership created between the teacher and the student to share the ownership of the learning process. Ongoing professional reflective practice provided potential answers to the following questions:

- What successes and challenges are present in technology-diverse school environments?
- What supports are needed to find success in schools focused on student-centered learning?
- What pedagogical changes need to be considered to support student-centered learning and increased technology use?
- How can managed pedagogical change allow for the least disruptive transition to student-centered learning?

Currently there is a need to assess, identify, categorize and review teacher experiences as technology-diverse educational settings become more prevalent. As teachers use technology to move to student-

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