

# Chapter XV

## Reciprocal Mentoring

### “In The Wild”:

#### A Retrospective, Comparative Case Study of ICT Teacher Professional Development

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#### **ABSTRACT**

*For teachers in the 21st Century it has become critical that they develop the skills to be able to teach in a world that is being transformed by technological innovations. These skills include effectively teaching in blended learning environments with high-quality online learning resources available on the internet. Chief among the challenges faced by these teachers is that mid- and late career teachers, unlike pre-service teachers, do not have adequate technology knowledge. A challenge for pre-service teachers is that they do not have the pedagogical and content knowledge to be able to effectively implement their technology knowledge in the classroom. This retrospective comparative case study was undertaken to understand reciprocal mentoring (RM) relationships that can occur between in-service teachers and pre-service teachers during implementation of a technology based lesson. The transfer of knowledge between the members of the RM dyad is described through the lens of technological pedagogical content knowledge.*

## INTRODUCTION

In the United States of America (USA), as in many places in the world, there has been an increasing focus on integrating online information and communication technology (ICT) and the use of a blended learning environment into primary and secondary education. Rapid technological innovations offer a wealth of potential for transforming education, in particular with regard to helping to support the development of critical 21st century teaching and learning skills (Computing Research Association, 2005). For teachers, these skills include effectively finding, sharing, and teaching with the vast wealth of high-quality online learning resources increasingly available on the Internet, and the emerging cyber-infrastructure for education. Of necessity this often includes learning how to effectively teach within a blended learning environment (Bonk, et al, 2002; Clark & James, 2005; Osguthorpe & Graham, 2003).

However, these tremendous opportunities also come with a significant number of challenges. Chief among them is that most mid- and late-career teachers, unlike their students and new teachers, are not digital natives. While experienced teachers may possess a vast and effective repertoire of teaching strategies and lesson plans, these were typically designed around the notion of temporally and physically constrained resources (e.g., textbooks) within the confines of a single classroom. The distributed and limitless access provided by the Internet turns these assumptions on their head – and challenges these teachers to rethink their practices to support blended learning approaches.

The study reported in this chapter sits at the nexus of these issues. In the context of a 5-year research project, largely funded by the US National Science Foundation, we have been developing simple tools to help teachers to better design and share classroom activities that use high-quality online learning resources. We have designed accompanying teacher professional development

experiences for both in-service (practicing) and pre-service (student) teachers. The purpose of these activities is to help develop teachers' design capacity with online resources in order to improve classroom practices and student learning. Not surprisingly, we have observed large differences between the in- and pre-service teachers both in terms of their ability to acquire the necessary technological skills, and their ability to effectively apply these in the service of instruction. In general, young, pre-service teachers easily acquire the necessary ICT skills but are unsure how to use these in pedagogical contexts. Conversely, experienced teachers often struggle with learning new ICT skills, yet have the classroom skills and experience to be able to use them to promote student learning.

Moreover, an interesting dynamic can emerge when a pre-service teacher, armed with a vast repertoire of ICT skills, begins student teaching and works with an experienced, mentoring teacher. Here, both members bring potentially complementary skills to the table, which can result in a mutually and reciprocally beneficial relationship.

To begin to address these interrelationships, we undertook a retrospective comparative case study to examine reciprocal mentoring relationships that developed between three pairs of teachers, or *dyads*. All teachers participated in professional development workshops with blended learning components, in which they learned to use a software tool, called the Instructional Architect, to design activities using online learning resources. The pairs consisted of an experienced in-service teacher and a pre-service student teacher. The particular focus of the case study was on understanding and characterizing the mutual transfer of technological and pedagogical content knowledge between the two members of the dyad.

The next section of this chapter describes the theoretical framework, which was informed by two strands of research: reciprocal mentoring (RM), and teacher knowledge. We then describe the ICT tool and professional development in our

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