Chapter 5
Preparing Future Teachers for Technology Integration: Technology Mentoring for Pre-Service Classroom Teachers

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ABSTRACT

Over recent years, technological pedagogical content knowledge (TPACK) has been commonly used as a technology integration framework in both research and practice to support teacher knowledge in terms of instructional decision making in a technology-driven learning environment. This chapter focuses on collaboration between pre-service classroom teachers and ICT teachers. Within the scope of technology integration and by characterizing Computer Education and Instructional Technologies Department (CEIT) graduates as technology coordinators besides their ICT teacher role in Turkey, a collaborative process in which pre-service teachers from CEIT department work as technology mentor to those in the classroom teaching program was carried out. As a result of collaboration between pre-service teachers, due to the two-way interaction, it was expected that the pre-service classroom teachers could develop their knowledge in terms of TPACK and pre-service teachers from CEIT could able to have tangible experiences about the role they will take on in the future in the context of integration.

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INTRODUCTION

Worldwide, governments are allocating large investments on Information Communication Technology (ICT) to provide digital transformations in education and support learner needs in the information age. Accordingly, schools have attached importance on using technologies in terms of providing rich learning content, connecting curriculum with real life applications, and allowing students to interact with the learning materials (Pouezevara et al., 2013). Similarly, technology initiatives have been disseminated into schools to provide ultimate technology access for students, support learning outcomes, and prepare students for the 21st century. In this educational landscape, teachers are expected to develop new forms of professional knowledge to benefit from digital environments for content delivery, learner support, and assessment (Freeman et al., 2017). In this direction, Technological Pedagogical Content Knowledge (TPACK) framework described a specialized form of knowledge defining the "multifaceted, situated and complex" nature of teacher knowledge for the effective integration of technology into their authentic contexts (Mishra & Koehler, 2006). This framework describes multiple subsets of TPACK including subsets of Technological Knowledge (TK), Technological Pedagogical Knowledge (TPK), and Technological Content Knowledge (TCK).

In this study, a collaborative process was planned and implemented where pre-service classroom teachers were advised on using technology for learning by pre-service teachers from the Computer Education and Instructional Technologies (CEIT) department since these graduates are considered as leaders for guiding integration of technology into the learning process in their future schools. In this way, it was expected that, due to the mentoring by CEIT department candidates which will be named as pre-service ICT teachers during the chapter, the pre-service classroom teachers would show development in terms of Technological Pedagogical Content Knowledge. As a part of this research, activities were carried out within the scope of teaching practice embedded in teacher education curricula so that the pre-service teachers had realistic experiences. The main research questions of the study were:

1. What were the experiences of the pre-service classroom teachers in collaboration with pre-service ICT teachers in terms of their TPACK development?
2. What kind of experiences did the mentoring processes provide to pre-service ICT teachers for their roles in the integration of technology with the learning environment?

BACKGROUND

One of the issues that educational systems face today is the integration of technology into the learning. Schools are incorporating the latest technologies and teachers are expected to guide the integration of these technologies into the learning environments. Although technology access in schools has increased and teachers have better technology skills, the integration of technology into the learning process has not been actualized in the same way (Lai & Pratt, 2004). Integration of technology into the learning process has required more than simply equipping classrooms with technologies (Çağıltay et al., 2001; Maddin, 2002). Thus, integration of technology into the learning process has identified a complex process (Harris & Hofer, 2009; Mishra & Koehler, 2008). From this point of view, especially considering the central position of teachers in educational change, the integration of technology into the learning process will