Chapter 5

The Development of Technology Integration in a Graduate Course for Practicing Teachers

Anneke Smits
Windesheim University of Applied Sciences, The Netherlands

Joke Voogt
University of Amsterdam, The Netherlands & Windesheim University of Applied Sciences, The Netherlands

Lieke van Velze
Windesheim University of Applied Sciences, The Netherlands

ABSTRACT

This chapter describes the design and outcomes of a graduate course for practicing teachers that aims to develop the quality of technology integration in their educational contexts. The course is rooted in a set of concepts and theories and in three pedagogical principles for enhancing teachers’ technology integration. The outcomes of the course were measured by using a mixed methods design. After the course, all students showed satisfactory TPACK scores and most students (83%) produced lessons that showed a good quality of technology integration, and 75% of the lessons showed a rich array of technological affordances. Neither the quality of the technology integration as shown in their lesson design and enactment nor the number of different technological affordances students showed in their (enacted) lesson design were related to students’ TPACK scores after the course. This unexpected finding is discussed. Students reported a development from unconscious technology integration to conscious technology integration.

DOI: 10.4018/978-1-5225-7001-1.ch005
The Development of Technology Integration in a Graduate Course for Practicing Teachers

INTRODUCTION

The ubiquitous presence of technology in society and in schools, as well as the affordances of technology for education warrant careful attention for the topic of technology integration in teacher education. As straightforward as this may seem, the actual practice of teaching pre-service teachers to integrate technological pedagogical content knowledge (TPACK, Koehler & Mishra, 2008) in their lessons is complex and not without problems. Teacher educators are faced with an array of prior experiences, attitudes, skill levels and fears in their students regarding the use of technology (e.g. in pre-service education: Sadaf, Newby, & Ertmer, 2012; So, Choi, Lim, & Xiong, 2012).

In graduate education, the differences between students may even be exacerbated by the different circumstances and school cultures in which students teach (Ertmer & Ottenbreit-Leftwich, 2010). The case study in this chapter concerns a graduate course on technology integration for in-service teachers. The central problem in this course is teaching technology integration to groups of practicing teachers from different content areas and different levels of education, with different prior experiences, attitudes, skills and fears regarding technology.

The graduate course Learning with Technology is taught at the teacher education department of a Dutch university of applied sciences. The course targets the development of TPACK in practicing teachers with a set of related concepts and the expression thereof in pedagogical reasoning and educational design. It is part of a two-year master’s program for practicing teachers who work in different educational settings (primary, secondary, special education, vocational education and higher education). The course has a duration of 10 weeks, and the study load amounts to 168 study hours. At the start of the graduate course Learning with Technology, students often fear that the focus is solely on technology and some students quickly state that they “are not a technology person.” In an early version of the course the authors had observed that too much focus on technology in the course tended to lead to resistance in a substantial percentage of students. This situation led to a redesign that begins with a focus on theoretical concepts that support the design of high quality learning situations with technology, rather than a focus on modeling the use of technology tools and applications. It was anticipated that teaching a set of concepts related to the TPACK framework, could shift the focus from technology to the core business of education: how to teach content in such a way that students learn and how to use technology to improve this process.

The problem central to this research is teaching technology integration to groups of practicing teachers teaching different content areas in different levels of education, with different prior experiences, attitudes, skills and fears regarding technology. The main research question guiding this study concerns the outcomes of the course Learning with Technology in terms of TPACK development and the quality of the ensuing technology-rich educational lesson design of the students participating in the course. This chapter provides the theoretical background of the course, the design and the outcomes.

BACKGROUND

Based on the literature, the authors define teachers’ technology integration as the teachers’ conscious alignment between specific learning goals for their content, (content specific) pedagogy, affordances and limitations of technology and teachers’ and pupils’ roles in order to produce meaningful learning outcomes and to prepare students for life in a digital world (Mishra & Koehler, 2006; Heitink, Voogt, Verplanken, Van Braak, & Fisser, 2016; Higgins, Xiao & Katsipataki, 2012; Voogt, van Braak, Heitink, Verplanken,
19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the product's webpage: www.igi-global.com/chapter/the-development-of-technology-integration-in-a-graduate-course-for-practicing-teachers/215497?camid=4v1


Related Content

Development of a Middle School Online Science Curriculum: Lessons Learned From a Design-Based Research Project

Elementary Students as Digital Makers: Improving STEM+C Teaching and Learning With Digital Making
Yan Sun, Mabel C. P. O. Okojie, Wei-Chieh Wayne Yu and Tinukwa C. Boulder (2020). Leveraging Technology to Improve School Safety and Student Wellbeing (pp. 262-280). www.igi-global.com/chapter/elementary-students-as-digital-makers/239708?camid=4v1a

Retention of Online Learners: The Importance of Support Services