

# Experiences in Digital Video Composition as Sources of Self-Efficacy Toward Technology Use

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## ABSTRACT

As teachers' self-efficacy has been shown to be a crucial factor in technology integration, there is a need to understand the mechanisms that may raise teachers' self-efficacy toward technology integration. This article seeks to understand what sources of self-efficacy hands-on experiences with technology may provide to pre-service teachers. The participants were 37 students who were taking a course on digital literacies, where they composed a digital video in small groups. The data consists of students' individually written post-course self-evaluation reports. In the analysis of the reports, the authors identified text fragments that indicated either 1) sources of self-efficacy related to technology use, 2) students' willingness to use technology in their teaching, or 3) perceived value of technology use. Almost half of the students indicated some source of self-efficacy in their reports mastery experiences being the most frequent source of self-efficacy. The results suggest that digital video composition may be a good way to enhance students' self-efficacy related to technology use.

## KEYWORDS

Digital Literacy, Multimodal Composition, Pre-Service Teacher, Teacher Education, Teacher's Self-Efficacy, Technology Integration

## INTRODUCTION

Integrating technology in a pedagogically purposeful way in teaching is an important objective in pre- and in-service teacher education. However, research shows that pre-service teachers feel they are not well prepared to effectively use technology in the classroom (Drent & Meelissen, 2008; Kay, 2006). This may explain why beginning teachers are limited in their technology use (Gao, Wong, Choy, & Wu, 2011) or why they use technology to support traditional teaching instead of using it for creating learner-centered practices (Tondeur, Pareja Roblin, van Braak, Voogt, & Prestridge, 2017). Furthermore, many teachers report a lack of confidence, limited technological competencies, and negative attitudes toward technology integration (Bingimlas, 2009). As teachers' self-efficacy has been shown to be one of the most crucial factors in technology integration (e.g., Chen, 2010; Wang, Ertmer, & Newby, 2004), there is a need to understand the mechanisms that may raise teachers' self-efficacy toward technology integration. Hands-on experiences with engaging technologies may be one effective way to enhance pre-service teachers' confidence in using technology (Heo, 2009; Kiili, Kauppinen, Coiro & Utriainen, 2016). This study seeks to understand what sources of self-efficacy hands-on experiences with technology may provide to pre-service teachers and students in an education administration program.

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## SELF-EFFICACY BELIEFS AND USE OF TECHNOLOGY IN TEACHING

Self-efficacy is defined as a person's beliefs or confidence about his or her capability to accomplish a task under specific conditions (Bandura, 1997). Perceived self-efficacy beliefs affect individuals' initial choices of activities, the levels of the goals they set for themselves, the amount of effort they mobilize, and their outcome expectations (Bandura, 1997). Thus, it is one important factor explaining teachers' decisions about the use of technology in their classrooms—not only about whether to use technology (Chen, 2010; Teo, 2009) but about how to use technology and how much effort to put into implementing new technologies (cf. Tondeur et al., 2017). Self-efficacy beliefs are also related to getting through the barriers that people face in their activities (Zimmermann, 2000), which are also particularly significant when it comes to implementing new technologies in the classroom.

Several studies have reported instructional practices that have succeeded in enhancing pre-service teachers' self-efficacy toward technology integration (Banas & York, 2014; Heo, 2009; Koh, 2011). In a study by Banas and York (2014), pre-service teachers engaged in authentic learning exercises where they designed four detailed technology-integrated lesson plans in small groups and gave one of the lessons as they would in a real classroom situation. Authentic learning exercises and feedback from instructors and peers seemed to have a positive influence on self-efficacy toward technology integration and intentions to use technology. In addition, Heo (2009) found that digital storytelling experiences improved pre-service teachers' self-efficacy toward technology integration. Further, technology-centered teaching experiences may increase pre-service teachers' self-efficacy toward technology integration (Han, Shin, & Ko, 2017). Although studies suggest that the increase of self-efficacy beliefs is related to encouragement, the opportunity to experiment with technology, and feedback from reliable persons (cf. Tondeur et al., 2017), there are fewer studies clarifying the sources of the increase in self-efficacy. This study seeks to understand the student experiences behind the increase in self-efficacy in technology use.

### THE SOURCES OF SELF-EFFICACY

According to Bandura (1997), there are four basic information sources that inform self-efficacy beliefs: mastery experiences, vicarious experiences, verbal and social persuasion from others, and psychological and affective states. *Mastery experiences* are thought to have the strongest influence on self-efficacy, and they provide the most reliable evidence for one's judgments about one's own performance. Successful experiences usually increase one's confidence about performing well in similar tasks. Occasional failures should not affect one's self-efficacy beliefs, but repeated failures tend to weaken one's confidence (Bandura, 1997; Schunk & Usher, 2011).

In addition to mastery experiences, *vicarious experiences* of observing others perform tasks can build one's efficacy beliefs. If others, especially similar others, can successfully accomplish the task, people are inclined to believe they will succeed at the task as well (Schunk & Usher, 2011). Social models may be of particular importance in the development of self-efficacy when people are uncertain about their own abilities or have limited experience with the task at hand (Usher & Pajares, 2008). In academic settings, it has been noted that observing peers' successful performance may sometimes promote students' self-efficacy more than observing teachers (Ritchie, 2016).

*Verbal and social persuasion* from others is the third source of self-efficacy (Bandura, 1997). Encouragement as well as evaluative positive feedback about performance may raise students' confidence and effort in accomplishing a task (Usher & Pajares, 2008), whereas inconsiderately given negative feedback may erode student's self-efficacy. In order to be effective, social persuasions should be genuine (Britner & Pajares, 2006) and come from someone respected and knowledgeable (Ritchie, 2016).

Finally, *psychological and affective* states also serve as a source of self-efficacy (Bandura, 1997), as strong emotional reactions to a task can provide cues to expected success or failure (Usher & Pajares, 2008). Negative emotional reactions, such as nervousness or anxiety, may lower self-efficacy

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