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Video use in teacher education: An international survey of practices

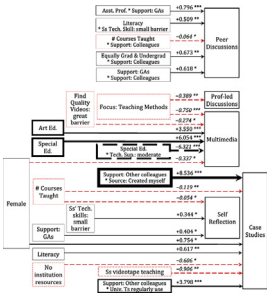
Tanya Christ [a, *], Poonam Arya [b], Ming Ming Chiu [c]

[a] Oakland University, 2200 N. Squirrel Rd., Rochester, MI, 48309, USA
[b] Wayne State University, USA
[c] Purdue University, USA

HIGHLIGHTS

- Video is used just an average of three times per course in teacher education.
- Typically just one kind of video method is used per course.
- Higher than average teaching load is a barrier to multiple kinds of video use.
- Specific discipline areas and colleagues' support increase video use.

GRAPHICAL ABSTRACT



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ABSTRACT

Video use in teacher education can improve teacher/student learning, but teacher educators' extent/uses of video, or what supports or hinders their uses, have not been documented. This study explores these issues. 208 teacher educators" survey responses regarding their practices across 977 teacher-education courses during one academic year were analyzed using multilevel, multivariate outcome analyses to identify relations between explanatory variables (institutional supports or barriers, teacher-educator characteristics, course attributes, educator beliefs, and video properties) and types of video uses (self-reflection, peer discussion, professor-led discussion, case studies, and multimedia). Findings show often infrequent/unvaried use of video. More frequent/varies video methods are needed.

Improvements in teaching are more closely related to video use in teacher education than reading about or discussing teaching practices without video (Christ, Arya, & Chiu, 2016; Cirino, Pollard-Durodola, Foorman, Carlson, & Francis, 2007). By bridging the gap between theory and practice, video use can improve teacher development practices in many countries (Bencze, Hewitt, & Pedretti, 2001; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006; Tochon, 2008). Video use in teacher education provides multiple sources of information with which to create a rich shared experience, focus attention on specific sequences of behaviors for analysis and discussion, and thereby identify practical ways to improve teaching practices (Fadde & Sullivan, 2013; Hixon & So, 2009; Marsh, Mitchell, & Adamczyk, 2010; Masats & Dooly, 2011; Towers & Rapke, 2011). International studies show that such discussions within learning communities can enhance teachers' learning (Stoll et al., 2006). Further, different video methods facilitate different kinds of outcomes–e.g., self-reflection might help a

* Corresponding author.
E-mail addresses: christ@oakland.edu (T. Christ), parya@wayne.edu (P. Arya), mingmingchiu@gmail.com (M.M. Chiu).

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teacher identify a problem, and reflecting on the video with peers might help her generate a solution; and integrating multiple video methods over time yields greater breadth and depth of teacher learning (Arya, Christ, & Chiu, 2015).

1. Theoretical background

We adopt a theoretical framework grounded in our previous research, which is undergirded by socio-cultural theory and empirical research (Christ et al., 2016; see Fig. 1). Socio-cultural theory (Vygotsky, 1978) provides a theoretical framework for understanding the research on professional development, video use, and factors that affect technology use. Three of its tenets are critical: (a) social interactions; (b) modeling and scaffolding within the zone of proximal development; and (c) artifacts. First, *social interactions* help learning occur and become internalized (Kozulin, 2003). Second, *modeling* and *scaffolding* in the *Zone of Proximal Development* support this social learning. *Modeling* refers to showing someone how to enact a procedure. *Scaffolding* refers to adaptive support for a person to complete task. The *Zone of Proximal Development* describes tasks and conditions for optimal learning —beyond what an individual can do alone and achievable with some support, such as modeling or scaffolding (Vygotsky, 1978). Finally, objects within a culture, referred to as *artifacts*, mediate this learning process (Cole & Wertsch, 1996). For example, a teacher's written lesson plan, the book used in the lesson, and a video of her instruction are all artifacts. Socio-cultural theory's focus on the social interactions, modeling and scaffolding in the Zone of Proximal Development, and how artifacts mediate learning explain some ways of learning occurs during professional development with the uses of videos. Likewise, factors that affect technology use can be related to social interactions, such as support provided for using technology, or artifacts, such as access to videos, which support or hinder technology use. Thus, these tenets of socio-cultural theory frame the empirical research that informs our study. Further, past studies show how tenets of professional development, such as modeling, scaffolding, co-construction, social processes, etc., and factors that impact technology use, such as institution, discipline area, educator, etc., can potentially mediate the use of specific video methods, including multimedia, case studies, discussions with peers or professors, and self-reflection. These video methods are also related to specific outcomes, such as teacher learning and application of that learning to their instruction.

The tenets of professional development presented in Fig. 1 are culled from existing research on teacher professional development, and align with aspects of video methods. For example, video discussion methods incorporate *scaffolding* (Palincsar & Brown, 1984; Vygotsky, 1978) and *co-construction* of understandings (Faidley, Evensen, Salisbury-Glennon, Glenn, & Hmelo, 2000; Lave, 2004), which often occur in *professional learning communities* (Richmond & Manokore, 2011; Roth et al., 2011; Vescio, Ross, & Adams, 2008). Both video case studies and video discussions use *teachers everyday practices* (Borko, Jacobs, Eiteljorg, & Pittman, 2008). Video case studies, video discussions, and video embedded in multimedia contexts employ *modeling* (Vygotsky, 1978). Finally, all of the video methods present *physical artifacts* (Cole & Wertsch, 1996), and provide opportunities for *situated learning* within meaningful contexts (Greeno, 2003). Additionally, video methods have the potential to be *sustained over time* (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). As different video methods address different tenets, using more video methods within a course might cover more professional development tenets.

Studies on technology use in education show that several factors influence technology use. These include institutional structure, discipline area, course characteristics, educator characteristics, and support factors (Ahmadpour & Mirdamadi, 2010; Kampov-Polevoi, 2010; Meyer & Xu, 2009). While these previous studies have not focused specifically on video use in teacher education, they nevertheless point to potential supports and barriers to video use that we empirically test in this study.

While research shows that all video methods are related to teachers' learning, such as gaining new ideas related to pedagogy (Arya & Christ, 2013; Baecher, Rorimer, & Smith, 2012; Calandra, Sun, & Puvirajah, 2014; Christ, Arya, & Chiu, 2012, 2014; Christ et al., 2016; Fadde & Sullivan, 2013), only video discussions are related to teachers' *application* of this learning to their instruction (Christ et al., 2014). These relations underscore the importance of adequately and effectively integrating video methods in teacher education. As different video methods are related to different

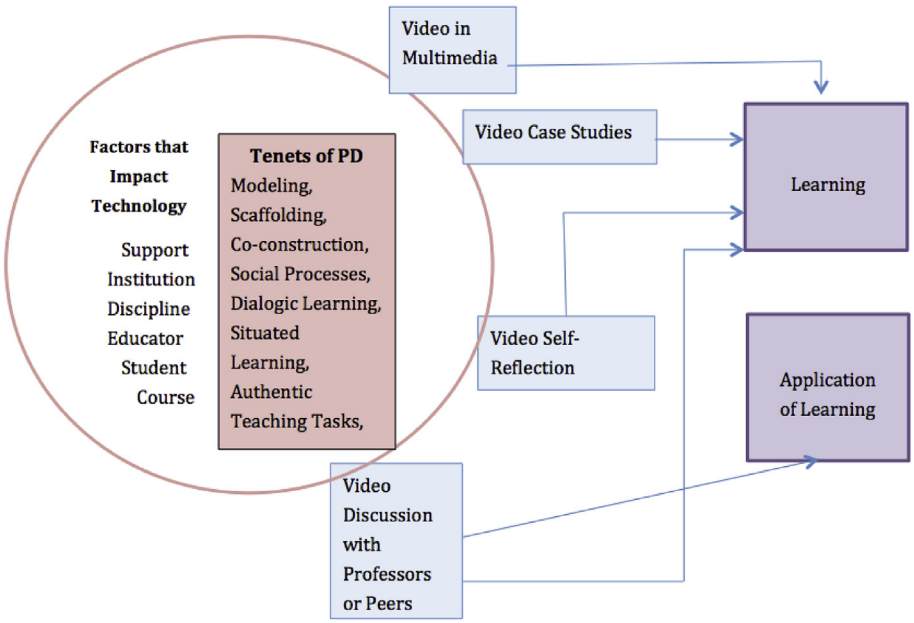

Fig. 1. Conceptual Framework (Christ et al., 2016).