# The Use of Video Reflection for Teacher Education and Professional Learning

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*The literature base is clear that when teachers reflect on their practice, they can identify areas of strength and areas of growth—both of which can improve the quality of their teaching (Jaeger, 2013). However, the realities of teaching today often mean teachers have many competing responsibilities and very little time between classes and after school for professional learning and development. Many teachers do not have the opportunity to reflect on their practice until hours or days after teaching a lesson or activity. By incorporating video into a teacher's reflective practices, the teacher can revisit the lesson or activity as if they were instantly transported back to that classroom. Video reflection can serve multiple purposes in today's educational environment. It can promote personal growth, be a cost-effective form of professional development (PD), and be used by evaluators to measure teachers' strengths and weaknesses.*

In this commentary, we draw upon our research regarding the use of video reflection with preservice teachers to identify its potential applications to the field of teacher education and professional learning. Based on a pilot project conducted at three large public teacher education programs, we found that preservice teachers, mentor teachers, and university supervisors used video reflection in different ways, all geared toward improving instruction and growing as a professional. Along with using video reflection as a form of PD, we noticed trends that suggest video reflection could be used as a coaching tool for university supervisors or K-12 instructional coaches or administrators. We argue that when looking for both PD and assessment tools, the multitude of uses for video reflection make it an interesting option for university education programs and K-12 schools.

## Research Design and Data Analysis

We present findings from a series of interviews conducted with preservice teachers and their corresponding university supervisors as part of a larger pilot program. That pilot sought to integrate new measures of evaluation and feedback into teacher education programs aligned to the multiple measures approach taken by the Measures of Effective Teaching (MET) project (Bill & Melinda Gates Foundation, 2010), including student perception surveys and external ratings of preservice teacher performance on the nationally normed Classroom Assessment Scoring System (CLASS) rubric (Farley, Clayton, & Kaka, 2018a, 2018b). For the pilot, 60 preservice teachers were equipped with an iPad, a tracker fob (a small device that a teacher can have on their person causing the iPad to swivel, track, and record whoever is holding the fob), and video recording software, which allowed them to record themselves while teaching and moving about the classroom. Preservice teachers were also able to use the video equipment to record specific areas of their classroom to focus on individual students or groups of students. While some of our prior research has examined the use of student surveys and external ratings to

measure student teacher effectiveness (Farley et al., 2018a, 2018b), our most recent research focused on preservice teachers' use of video as a tool for reflection (Gibbons & Farley, 2018, 2019). This follow-up study explored more holistically the following research question: What impact does video reflection have on preservice teachers' planning and instruction?

### Data Sources

This study relied on data drawn from pre- and post-interviews of eight preservice teachers and six university supervisors. The pre-interviews were conducted during the preservice teacher's first month of student teaching. The post-interviews were conducted during the final month of student teaching. Interview data was then transcribed and coded for common themes using the Dedoose software. Preservice teachers and university supervisors were located in three different universities in the Rocky Mountain region of the United States, and represented various subject areas including English language arts, mathematics, geography, history, and elementary education.

## Findings

Using reflection to foster growth among educators is not a novel concept; researchers have been studying teacher reflective practices for some time (Jaeger, 2013; Noormohammadi, 2014; Svojanovsky, 2017). However, researchers like Danielowich and McCarthy (2013) have noted that when teachers couple video reflection with more traditional reflection, they are better able to recognize detailed elements within the classroom that were previously overlooked or forgotten. Our research in the area of video reflection has elicited similar results among preservice teachers regarding the way video can be used to identify and make improvements to pedagogical methods, student engagement, and classroom management. Analyses of interviews revealed that the video recordings allowed preservice teachers to engage in interesting self-, peer-, and supervisor-guided reflection that enabled deeper self-analysis, particularly with regard to pedagogical inquiry. In addition to using video to reflect on individual lessons, our research suggests that preservice teachers were able to leverage their increased understanding of their own instructional strengths and areas for growth to become more empowered in soliciting support and feedback from mentor teachers and university supervisors in general. In total, these findings suggest that video reflection encourages preservice teachers to alter their planning and implementation of subject matter to modify instruction.

### Changes to Preservice Teacher Practice

**Pedagogical growth.** Analyses of interview data revealed that video reflection enabled preservice teachers to improve upon various teaching styles and methods of delivering instruction. Through video reflection, some preservice teachers identified areas where they needed improvement, such as insufficient questioning strategies, distracting gestures, and poor pacing. In reference to using video to foster pedagogical growth, one university supervisor stated:

> She [preservice teacher] came to me with a question about the video, and we focused mainly on that single question: How to facilitate more productive and independent

> student cooperative groups? We watched 10-15 minutes of the video, and looked together at the moves she made that facilitated student work and the elements of the lesson that made it hard for students to work together. The session felt truly collaborative, and the problem solving led to much more concrete and "actionable" coaching advice.

One preservice teacher in the study discussed the need to alter her implementation of in-class discussions because video recordings revealed that her students quickly became confused by certain discussion prompts, causing some to misbehave or become defiant throughout the remainder of the class discussion. The same preservice teacher observed that students actively participated in discussions when she guided the discussion and made connections between students' comments. Another preservice teacher stated, "I think that having…the ability to record yourself and then say, 'Okay, I was highly effective here and I was only partly effective here,' …would be very helpful, pretty much [for] the entire teaching career, just to continue to reflect and see what you can do better, and also praise what you did really well." Other preservice teachers made similar observations on various teaching methods used during their classes. The preservice teachers in the study made alterations to their lesson plans and teaching styles in order to benefit student engagement and improve the flow of classroom activities.

**Classroom management.** Another area of growth identified through preservice teacher and supervisor interviews was classroom management practices. Classroom management can be challenging for veteran teachers and is often a particularly challenging professional skill for preservice teachers (Rabin & Smith, 2016). Through video reflection, preservice teachers not only identified problematic areas within their classrooms, but with the aid of their university supervisors, preservice teachers also made adjustments to their lessons and approaches to manage problematic student behavior. One university supervisor stated:

> It's really important to go back and review instruction, and … also watch the students. Who's not paying attention, who's got their hands up, who's collaborating, and you can hear them (students) on the video. You can hear the kids collaborating or talking about basketball at the end of the day. So, it's a really good measure, I think, to see how the kids are engaging.

Reviewing and discussing the videos reduced occurrences of classroom management problems and sometimes the opportunity for problems to arise within the classroom. One preservice teacher stated, "Using video, my supervisor helped me to see the kids that are working and see which kids might not be, and which ones are just kind of hanging out when the other group members do the work." Another preservice teacher explained a situation regarding student cell phone use. After asking students to put away their cell phones, several students continued using them throughout class. The preservice teacher was able to meet with her mentor teacher and supervisor to discuss the issue and identify individual students so she could address the behaviors of individual students instead of punishing the whole class. Other preservice teachers noticed groups of students getting off-task as soon as the preservice teacher walked away from the group. After reflecting upon the video, these teachers were able to return to those groups of students the following day to address issues such as off-task behavior and reasons why the students stopped working together.

Video reflection allowed teachers to identify problematic behaviors more readily and to more accurately trace the roots of those behaviors. At times, students misbehave because they are confused about directions. One preservice teacher observed, "[I wasn't] clearly stating the learning objective for the day, I tend to go right into what we [were] doing. In my mind, I was trying to explain it, but I just ended up explaining what the activities were." This example reveals that without video reflection, some novice teachers do not even realize that they are not providing students with a solid foundation for learning. With video reflection, preservice teachers were able to identify and address many classroom management issues, altering their approaches to students and adapting their lessons to create more student engagement.

**Learner engagement.** Video reflection moved teachers beyond a classroom management orientation toward a learner engagement perspective. Preservice teachers in the study used video reflection to shed light on reasons why students were not engaged or meeting expectations on certain assignments. One preservice teacher reflected upon a group of students who he knew to be good students but who were not engaged in a reading activity. Upon further review of his video, he was able to identify the exact location in the reading that was giving the students trouble. Even though students did not express any difficulties or questions during the lesson, the video revealed several students were struggling with the same learning objective, which prompted the preservice teacher to return to the lesson and make modifications in order to re-teach the concepts during the following class. Without video reflection, many teachers may fail to realize exactly why their students are not engaged, even when the students are typically high performers. Many preservice teachers in the study revealed that their students often avoided making anyone aware that they were confused; therefore, they had to rely on different options like formative assessments to help identify where students were struggling. Preservice teachers could now combine formative assessments with video reflection to identify learner engagement problems and make modifications well before the problem grows into a larger issue.

## Discussion and Implications for Practice

Because our results suggest preservice teachers were able to enact significant and impactful changes based on video reflection, we believe there is a real opportunity for both preservice and in-service teachers to use video reflection to improve their practice. It may also provide a cost- and time-effective way for mentors, coaches, and administrators to provide feedback to educators, while also facilitating teacher development and collaboration through the use of shared video viewing. Below, we highlight two places where we believe video reflection can enrich and extend the professional learning of educators.

First, using video technology may increase the ability of coaches and administrators to provide fast, frequent feedback to teachers. Administrators can observe multiple teachers in one sitting without worrying about interrupting classes or observing an unrealistic snapshot of a teacher's practices. The ability for an evaluator to pause and take note of constructive teaching in a video—for example, when students exhibit full engagement with an activity, or issues in a video—when, perhaps, one student is intentionally distracting other students—is an added benefit to using video recordings for both formal and informal observations because those areas in the video can be cued up later and discussed with the teacher. In our study, some supervisors specifically identified sections in a preservice teacher's video where video reflection held

promise as a useful means for professional growth among educators and as a timely and cost-effective evaluation tool for supervisors and administrators. In reference to working with a preservice teacher and using video recordings as part of the evaluation, one university supervisor stated, "Sitting side by side with the student teachers and going through the evaluation rubrics together, just looking at their lesson plans, talking about what's going on with that child or that one or whatever. That wasn't bad at all. That was excellent. I would really keep that. It was a great tool." Video recordings can also be beneficial when an evaluator targets key areas of a teacher's instruction. In reference to using video to receive feedback, one preservice teacher said, "It's nice to kind of have people point out your flaws because it's harder for you [by yourself] to see them. Video made that possible."

We also believe video reflection holds promise as a form of PD for both novice and veteran teachers. Frustration often sets in as both preservice and in-service teachers sit through hours of formal professional development only to come away feeling like they have not gained practical ideas for their classroom. Mentoring and instructional coaching have been found to be effective forms of PD (Desimone & Pak, 2017; Whitaker, 2000), and when mentoring and coaching are combined with video reflection, the PD can become not just more effective but also more personal. Frustrated and overworked teachers can lead to teacher apathy or even a departure from the profession. Sims and Allen (2018) attribute declining retention among teachers to poor working conditions related to school leadership, lack of support, and lack of collaboration geared toward growth. Strauss (2017) cites Linda Darling-Hammond when suggesting that large attrition rates are related to underprepared teachers. Video reflection can offer teachers some of the necessary components discussed by Sims and Allen (2018), such as support and collaboration from both administrators and colleagues when they review video segments and work together with other teachers to offer constructive ideas that can lead to pedagogical growth. Additionally, Latham and Vogt (2007) found that better preparation and teacher attrition are correlated; meaning if teachers feel more prepared and supported to improve their craft, then they are more likely to remain with that school. Given this reality, it is worth asking whether there is a cost-effective and highly personal form of PD… Enter video reflection.

With video reflection, educators are able to analyze their own instruction to address areas of improvement and seek coaching from colleagues or supervisors when needed. One preservice teacher in the study stated, "I sent several videos to my supervisor to get feedback on certain aspects of my lessons." Another preservice teacher said, "I love them [university supervisor and mentor teacher] to watch my videos. They point things out that I can improve on." The preservice teachers in the study were able to show improvement is many different areas of their teaching. The same type of growth was pointed out and discussed by university supervisors. With the preservice teachers' permission, many supervisors used their videos to enhance their own instruction and provide realistic examples for other education students before those students entered the field. In this way, video reflection offers many of the best practices for job-embedded professional learning advocated by the field.

## Recommendations and Cautions regarding Video Use for Teacher Education

One primary purpose of the pilot study was to examine the feasibility of integrating video-based coaching and feedback into the student teaching semester. Our empirical results suggest that it

was not only feasible to integrate video technology, but also that video observation and coaching have promising implications for the education and development of preservice teachers (Farley et al., 2018a, 2018b; Gibbons & Farley, 2018). Not surprisingly, however, common technical challenges arose during the pilot, all of which could have affected participants' perceptions of the project. This is a common trend in the literature, which suggests that despite growing use of technology in teacher training and development (Lawless & Pellegrino, 2007), many teachers are not provided the necessary training and support to integrate technology in their practice (Llorens, Sllanova, & Grau, 2002; Stokes-Beverley & Simoy, 2016). And yet, meaningful technology integration is vital in order to yield the kinds of promising results described above.

In their research on barriers to technology integration, Ertmer and others suggest that both external, or first-order, barriers (e.g., training or time) and internal, or second-order, barriers (e.g., teachers' attitudes about technology) affect teachers' technology integration (Ertmer, 1999; Snoeyink & Ertmer, 2001). In the section that follows, we draw on our prior analyses and collective experiences managing this pilot program and working in teacher education to put forth recommendations for teacher education programs interested in integrating video technology. We believe these recommendations may mitigate some of the most salient first- and second-order barriers as it relates to video coaching, and may produce better results and a more streamlined process for preservice teachers.

## Anticipate Technical Challenges and Provide Technology Training

**Addressing Challenges.** We believe technical challenges can significantly threaten the efficacy and success of any video integration. To address first-order barriers when adopting video reflection practices, we recommend that teacher education institutions intentionally and proactively consider their approach to technology management, including decisions related to training, policies and procedures, and project oversight. Even though preservice teachers in our study tended to overcome technical challenges without additional interventions, it is important to note that the assumption regarding the current generation of teachers as digital natives (Orlando & Attard, 2016) who can troubleshoot technology issues without additional training is overly exaggerated. Preservice teachers in our study voiced frustration with video uploading problems, recording issues, and sound glitches, all of which caused some participants to record fewer videos than those participants who did not experience the same digital setbacks. While our pilot was largely successful and able to overcome some significant challenges, there are several lessons we learned throughout the project about managing technology. We share those below so that our experiences may help other programs avoid similar problems. We believe that improvements in these three areas could improve upon already promising outcomes reported in the findings section above.

***Training.*** At a minimum, we recommend schools and universities troubleshoot all technology and provide high-quality equipment training prior to releasing materials to participants. Although each of the partner universities held meetings with pilot participants to hand out equipment and provide a general overview of the technology, the depth of training varied across sites. This resulted in several avoidable problems, including preservice teachers who were provided broken or faulty technology. For example, several preservice teachers found that their equipment required software updates or battery replacements, which delayed the use of the technology. For

some teachers, those delays had detrimental effects during a brief, ten to fourteen-week student teaching experience. As a result, we recommend universities include a formal training prior to providing the technology to preservice teachers. These trainings should include both preservice teachers and their relevant coaches or mentors and should summarize key features of the technology. For example, training sessions should model (a) how to record and upload videos, (b) how to share videos with coaches or peers, as deemed appropriate, (c) how to set up recording equipment to ensure correct video orientation and sufficient sound quality, and (d) how to charge equipment and conduct software updates, if necessary and recommended. Although all technology was new in our pilot project, we believe the importance of troubleshooting and training may be even more critical for ongoing projects that rely on older, existing technology.

***Setting guidelines.*** Beyond equipment training, we encourage universities to set clear guidelines about how preservice teachers may utilize video technology to reflect on their practice and engage in coaching conversations with mentors. Preservice teachers will likely want to know the number or frequency of video observations and associated coaching sessions required. For example, our pilot teachers were required to share at least four videos, but they were given the flexibility to record as many videos as they wanted for their own personal use. They controlled the privacy of each video, and were able to select which videos to share. Regardless of the approach taken, universities interested in pursuing this work may want to consider developing a process for tracking the submission of videos and completion of debriefing conversations, consistent with common practices for in-person observations.

**Make Connections to Other Initiatives and Prioritize Reflective Practice**

**Connections to other programs.** Beyond first-order barriers, we recognize two second-order barriers—teachers' internal beliefs or experiences—that appeared to affect perceptions of the pilot study. First, teachers were generally more positive about their experiences when they were able to make meaningful connections between the video technology pilot and other initiatives within their school or teacher education program. Although participants generally affirmed the value of using video observations, several teachers reported they did not quite know what was expected with its implementation. Had we more intentionally constructed protocols streamlining the policies and practices in the use of video technology, and made explicit connections to other initiatives and existing practices at each institution, the preservice teachers may have more readily accepted the video observations as a vital part of their teacher preparation. This could have also helped overcome so-called reform fatigue that many teachers experience, even in their preservice experiences.

Some of the preservice teachers in the pilot were able to make connections to other initiatives and use their video software to support other programmatic demands, although we did not intentionally support that kind of integration. For example, two of the three universities participating in the pilot were also using edTPA, "a performance-based, subject-specific assessment and support system used by teacher preparation programs throughout the United States to emphasize, measure and support the skills and knowledge that all teachers need from Day 1 in the classroom" (edTPA, n.d.). Like the pilot project, edTPA relies on recorded video observations and external evaluations of teacher practice, so preservice teachers naturally found a connection between their video observations for the pilot and those required for edTPA. In fact,

several reported using the pilot video recordings to fulfill edTPA requirements, instead of adding edTPA videotaping to their already demanding schedules. The research team did not make an explicit connection between edTPA and the pilot project, which represents a missed opportunity. Perhaps if we had helped the candidates see the connections between the use of video observation for reflection and coaching and the use of video in edTPA, they would not have viewed edTPA as something "placed on top of one's [existing responsibilities and] integration into the classroom."

**Focusing on reflection.** Another second-order barrier that impacted technology integration was the teachers' beliefs about the use of video observations. In our pilot, teachers were much more positive about video technology when they believed it served a *reflective* rather than an *evaluative* purpose. The pilot project included two forms of video feedback, one more focused on reflection and the other on evaluation. First, student teachers engaged in formative video recordings and observations, often coupled with debriefs and support from a trusted university supervisor. Second, for four videotaped lessons, external evaluators reviewed the observation and rated preservice teachers using two rubrics—the nationally normed CLASS rubric (Center for Advanced Study of Teaching and Learning, 2019) and the evaluation rubric for in-service teachers within the state.

When comparing participant perceptions of these two experiences, one theme is very clear: Neither preservice teachers nor their supervisors found the external ratings of their teaching to be useful or impactful on practice. In fact, when asked to reflect on the various elements of the pilot, preservice teachers identified debriefs with coaches or peers and self-reflection as the most useful components of the project while external ratings were consistently seen as the least helpful (Farley et al, 2018). Preservice teachers reported these external ratings were "more stressful than anything else, especially on top of the edTPA," and they critiqued reviewers for being impersonal and not being able to understand the unique teaching context or situate the lesson in the scope of the unit. While some external raters provided valuable feedback to participants, the variance in quality and unfortunate lag time between submission of recordings and reviews of the recordings affected how participants used them. Given these trends, we recommend that teacher education programs utilize video observation primarily as a reflective or coaching tool, rather than using videos for strictly evaluative purposes.

## Conclusion

Professional development is a part of every teacher's agenda. In general, the literature suggests that some of the PD they take part in is applicable, while other forms of PD fall to the wayside. However, our research suggests that when a teacher combines video recordings with reflection, it seems to become more than a box to check on an evaluation form. This may have promising implications for both teacher education and the field of professional learning writ large. Through video, teachers are able to review their practice in a whole new way that offers glimpses into the dynamics of the classroom itself as well as a novel perspective on what it is like to sit in a teacher's class an learn material from their instruction.

However, the benefits of video reflection do not begin and end with teacher growth. This article has highlighted several different uses for video reflection, including improvements to

professional learning and collegial collaboration. Although video technology and software are not without their limitations, the benefits gleaned from our study tend to outweigh the constraints that our participants faced. Throughout the duration of the study, preservice teachers and university supervisors alike found new and innovative ways to utilize video to promote growth and development. This is particularly noteworthy given their generally negative perceptions of the external ratings that were also associated with the project. As technology progresses and more demands are placed on educators and evaluators, video reflection may help improve teachers' classroom practices leading to an influx of better-prepared and more qualified personnel entering the field of education.

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