

# *Incorporating a Video-Editing Activity in a Reflective Teaching Course for Preservice Teachers*

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**ABSTRACT:** Research and practice going back to the 1960s support the use of videotaping to facilitate preservice teachers' development of reflective teaching skills. Emerging research suggests that additional video-based activities, including editing video vignettes of teaching, can deepen preservice teachers' reflection. This action research study describes the incorporation of a video-editing activity in an "Introduction to Reflective Teaching Practice" course. Key features of the video-editing activities included (1) active videotaping of preservice teachers' field teaching by university supervisors, (2) self-directed video review by preservice teachers to support writing a reflective lesson analysis, (3) selection and editing of video vignettes by preservice teachers to illustrate their written reflections, and (4) posting of video vignettes on the students' electronic portfolio pages. Analysis of students' perceptions revealed considerable nervousness with the videotaping process but an appreciation of having video for personal feedback and to support reflective analysis.

Videotaping<sup>1</sup> to support the development of reflective practice by preservice teachers has been a staple of teacher education programs for many years. In this action research study, we attempted to improve preservice teachers' reflective process through an activity that emphasized active video recording and a deeper review of video through the selection and editing of video segments for the uploading to preservice teachers' electronic portfolios.

The study was undertaken as a pilot project to investigate the viability and value of incorporating video-editing activities in a required "Introduction to Reflective Teaching Practice" course and potentially in other

courses in the participating teacher education program. Two authors served as university supervisors in the reflective teaching course; the other was a faculty member in a master's degree instructional technology program in the same department (curriculum and instruction) who had expertise in video production. The primary goal of the pilot project was to design and implement a research-based video-editing activity that university supervisors could effectively execute. The secondary goal of the study was to ascertain the preservice teachers' perceived advantages and disadvantages of the video-based activities and to observe changes in their reflective process.

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## Literature

### Videotaping and Reflection

Over the last century, there has been increasing emphasis on the need for teachers to engage in reflective thinking in relation to teaching and professional practice (Dewey, 1933; Van Manen, 1977; Zeichner, 1987). Teacher education programs have therefore dedicated learning activities, units, and even entire courses to the development of reflective teaching practices by preservice teachers. Since the 1960s, when portable video equipment first became available, reviewing videotapes of on-campus microteaching or field-lesson teaching has supported preservice teachers' reflection (Wang & Hartley, 2003). At this point, the value of video as a tool for enhancing preservice teachers' reflective ability is widely acknowledged (Harford & MacRuairc, 2008). Video affords learners the ability to pause, rewind, and re-view segments multiple times. In addition to providing a permanent and manipulable record of a teaching activity, video enables teachers to get temporal and emotional distance from the demands of the classroom. This stepping back involves detaching oneself from the observation without becoming detached from the evidence gathered or the reflective process (Schön, 1983, as cited in Rich & Hannafin, 2008).

As illustrated through interviews with preservice teachers conducted by Greenwalt (2008), the initial experience of being videotaped and then confronted with the video can be emotionally overwhelming. This reflective situation is described as *hot* by Metacalf and Mischel (as cited in Husu, Toom, & Parkkinen, 2008), and it tends to produce emotional, simple, and quick reflections that are primarily self-focused. However, further video review of one's teaching (self-video) to support the writing of a reflective lesson analysis makes the reflective situation more *cool*—that is, more cognitive and more focused on teaching tasks and their impact on students.

Recent research suggests that the reflective situation can be further cooled and the quality of reflection thereby deepened through

activities that require preservice teachers to process video footage of their teaching. For instance, van Es and Sherin (2002) used their Video Analysis Support Tool (VAST), a multimedia software program, to have preservice teachers code video of their teaching activities and reorganize video segments for analysis to support writing a reflective analysis. Van Es and Sherin compared the reflective essays written by participants using the VAST system with essays written by participants in a control group, who reviewed self-video but did not use VAST. Both groups wrote essays before and after a course that included a three-session VAST program (treatment). Participants in both groups improved from the first essay to the second, as would be expected. However, VAST participants improved more than control group participants in the quality of their reflective essays. The participants, treatment and control, were interns in a certification program that involved extended classroom teaching.

Rich and Hannafin (2008) used a video analysis tool to help preservice teachers' focus their reflective analyses on aspects of teaching by having them code and reorganize segments of self-video. The use of video analysis tools and techniques essentially creates instructional activities by repurposing video-based qualitative research methods that typically involve time-code marking of source video, attaching text comments in database fields associated with marked video clips, grouping video clips by coded data fields, and then viewing and analyzing the grouped classroom incidents.

Calandra, Brantley-Dias, Fox, and Lee (2007) implemented a less elaborate video-processing activity. In this study, preservice teachers viewed video of themselves teaching, wrote a reflective lesson analysis, and then selected segments of their self-video to illustrate critical incidents in their lesson. Participants then edited the selected segments into video vignettes and posted the videos to their electronic portfolio pages. The researchers used a seven-level coding scheme for depth of reflection (Sparks-Langer et al., as cited in Calandra et al., 2007) to conclude that the preservice

teachers participating in the video-editing activity wrote deeper reflective reports than did participants who wrote reflections without video support.

Calandra, Gurvitch, and Lund (2008) implemented a similar video-editing activity with preservice physical education teachers. The goals of the study were to examine the video vignettes produced by the preservice teachers and to see how the participants' written reflections changed with limited external guidance as a result of the video-editing process. Participants were given iMovie training at the beginning of a course. Three times during the course, participants taught a 45-minute lesson that was videotaped. Participants were asked to report on whether they thought the lesson had been successful and why. Participants were then asked to identify incidents in the lesson that supported their descriptions and to edit video vignettes of key incidents. Each clip was to be no more than 3 minutes long, owing to computer-video constraints (which are common when transferring video to the Internet).

The preservice teachers' edited video vignettes were evaluated according to two categories. One category focus on the vignettes being more teacher oriented or more student oriented. The other category involved whether the incidents were positive or negative representations of the preservice teachers' lessons. Analysis showed that 90% of the participants' initial vignettes focused on the participants' teaching behaviors and 85% of the vignettes depicted positive teaching examples (Calandra et al., 2008).

The authors' second goal was to see if and how participants' written reflections might change after engaging in a video-editing activity. Students were given little guidance regarding what video segments to select or how to reflect on them. Improvement in the level of reflection was observed over time, using the same seven-level coding scheme as Calandra and colleagues (2007). The authors acknowledged that the observed improvement might have come naturally with three repetitions of the reflective writing activity, regardless of the video-editing activity. How-

ever, the authors noted that some students who selected video clips that they initially judged to be positive later included comments in their written reflections indicating how they might improve their teaching in these vignettes. This finding suggests that the students' reflections were more self-critical after engaging in the video-editing activity.

## Design and Implementation of a Video-Editing Activity

The primary purpose of the current study was to apply the findings of this recent research on video-editing activities in the context of a teacher preparation class taught by two of the authors. Findings are intended to inform local decision making about the implementation of video-editing activities in the participating teacher preparation program, with potential implications for and application to other teacher education programs. Following the action research approach, we now describe the implementation context.

### Analysis of Teaching and Learning Context

"Introduction to Reflective Teaching Practice" (ED-313) includes seated classes and preservice teachers' observing in public school classrooms 1 day per week over the course of a semester. In addition to observing the classroom teacher, students present lessons in the classroom and are given feedback by not only the classroom teachers but also the ED-313 instructors/university supervisors, who travel to schools to observe ED-313 students' lesson teaching. Students write reflective lesson analyses and post them on their LiveText electronic portfolio pages.

The participating teacher education program had included a general teaching methods course required of all majors from the 1980s through 2006. This course was taught completely on campus. Students studied instructional techniques and composed scripts for 12-minute minilessons. They then taught

these microteaching lessons to their peers. Every lesson was videotaped in VHS format, and students were required to view their lessons, write a self-analysis, and then consult with their instructor about making improvements in their teaching. There were many positive outcomes of this course, but the predominant feedback from students was that they found teaching their peers to be an artificial situation that did not prepare them for the public school classroom. A formal program review process yielded the decision to eliminate this on-campus course and to infuse the content into two existing field-based courses. One of these courses, "Introduction to Reflective Teaching Practice," required students to write reflective analyses of lessons taught in the field and to post these lesson analyses to their LiveText electronic portfolios, but it did not include field videotaping to support the preservice teachers' reflective writing.

The course instructor-researchers thought that a valuable form of feedback was being lost and that it was worth reconsidering videotaping students' lessons to support their reflective lesson analyses. In light of recent research findings, the teacher-researchers also wanted to explore the potential benefits of an added video-editing activity. The course instructors believed that the use of class time to learn and complete a video-editing activity was worthwhile because, at the minimum, students would learn the process of editing digital video files and attaching them to their electronic portfolios. The chair of the department supported the video-editing pilot project with funds to upgrade videotaping equipment.

### Design of Video Review and Editing Activities

The designers of the video-editing activity for ED-313 took into consideration the introductory level of the class, the students' limited classroom teaching experience, and the independence that university supervisors have in terms of guiding students' reflective analysis process. There is no required or consistent reflective teaching lens or grading rubric applied across multiple sections of ED-313; in fact,

sections are taught by at least 10 university supervisors. We therefore opted to implement a video-editing activity similar to that described by Calandra and colleagues (2008) rather than a more systematic and analytical coding method as described by van Es and Sherin (2002) or Rich and Hannafin (2008). As described by Calandra and colleagues, students were given relatively little explicit guidance in how to select video clips or how to use video clips to improve their written lesson analyses.

Although we purposefully kept the video-editing and reflection activity simple for this pilot project, we did make some enhancements to the classroom videotaping procedure used by Calandra and colleagues and other researchers and practitioners.

*Active videotaping.* In many of the classroom-videotaping studies reported in the literature, preservice or in-service teachers were apparently responsible for videotaping themselves. However, given our experiences with video for teacher feedback, we believed that it was important that the university supervisors actively record the preservice teachers' lessons—that is, panning and zooming the video camera as needed to follow the action of the class.

There are two problems with having preservice teachers self-record. The first is that the presence of the video camera makes preservice teachers nervous—especially, those who are conducting their first classroom lessons. Making the preservice teacher responsible for setting up and starting the video recording is an added imposition and distraction. In addition, an unattended camera can result in what Sherin and van Es (as cited in Rich & Hannafin, 2008) refer to as *video's keyhole effect*—that is, the tendency of viewers of a classroom video to focus on events that are prominent in the video to the exclusion of other, equally important events in the classroom. Indeed, an unattended camera is almost inevitably aimed at the teacher, thereby amplifying the preservice teachers' excessive focus on themselves when viewing self-video. Alternatively, a university supervising teacher should be able to occasionally pan or zoom the camera to follow the action of the class while taking observational notes.

Our approach to active videotaping included attaching a wireless lavalier (i.e., tie-clasp) microphone on the preservice teachers when they delivered their lesson. In addition to providing more accurate audio and video, this level of video production value should produce a more aesthetically pleasing video for the students to review—and later to upload to their LiveText page.

*Immediate viewing.* We believed that it was essential that students be able to review the video of their teaching as soon as possible after completing a lesson and to be able to view the video repeatedly and at their convenience. We therefore used a portable DVD video recorder in conjunction with mini-DV (digital tape) camcorders to record a full-size DVD disc of their lesson in the field. The DVD was given to the preservice teachers immediately after delivering their lesson so that they could view it on their own computers or DVD players.<sup>2</sup>

## Method

In addition to establishing a feasible videotaping, review, and editing process, the project explored students' perceptions of the video review and editing activities and whether the use of video would lead to changes in preservice teachers' process of writing reflective lesson analyses. These questions were addressed through the analysis of data gathered from three sources:

1. questionnaire completed by students at the beginning of class that ascertained the students' incoming levels of experience with reflection, being videotaped, and video production activities, such as camera operation and editing;
2. questionnaire completed by students at the conclusion of the class that gathered their estimates of the number of times that they watched the video of the first lesson (video for review only) and the video of the second lesson (video review plus editing)—the questionnaire also asked students to comment on the advantages and disadvantages of video

activities and on technical difficulties that they encountered; and

3. interviews conducted by the instructional technology researcher with a random selection of students who completed the course, to elicit more in-depth comments based on the questionnaires.

## Participants

The participants in this study were 16 preservice teachers in a required reflective teaching course. The students were informed of their right to participate or not and to withdraw from the study at any time and for any reason. All the students signed volunteer participation and video release forms. The questionnaire completed at the beginning of the semester revealed that most of the students (94%) had some experience with reflective writing, from keeping a personal diary to performing assignments in earlier teacher education classes. Most of the participating students (87%) had experience being videotaped, whereas many (67%) had experience with video production activities, such as operating a camcorder or using video-editing software.

## Implementation of Video Review and Editing Activities

As shown in Figure 1, the first stage of the video activity involved students' viewing video of their lesson teaching. The preservice teachers were given a DVD of their teaching immediately upon completion of the lesson, which was typically 40 to 50 minutes long. For their first lesson analysis, students were instructed to use the DVD in whatever way

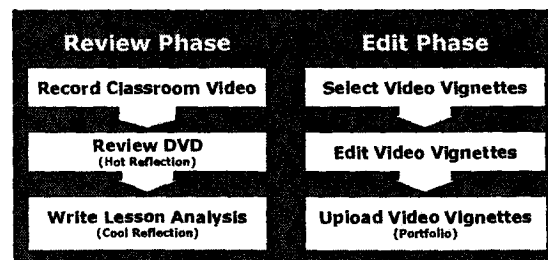


Figure 1. Video review and editing activities.

that they wanted to in writing their reflective reports. For the second lesson analysis, students were instructed to use the DVD as before, to help write the lesson analysis, but to also select two or three video segments, each 2 to 3 minutes long, to be edited in iMovie and uploaded to LiveText.

During an ED-313 class meeting in the on-campus instructional support computer lab after the second lesson analysis, students were trained on how to transfer video footage to iMovie on iMac computers. Two instructional support staff provided iMovie training, and most of the students (14 of 16) were able to transfer footage to the computer, edit segments into vignettes, output the video vignettes to the computer desktop, and upload them to LiveText during a single 2-hour class period. Two students needed to come back to complete the editing and uploading activity.

## Results and Analysis

We expected that students completing the video-editing activity (second lesson) would watch the DVD more times than they had for the video-review-only activity (first lesson). This simple measure intended to reveal changes in the students' reflective behavior brought about by the need to select segments of their teaching videos to edit and upload to LiveText. Counter to our expectation, students reported watching the videos essentially the same number of times in the review-only and review-plus-editing conditions (3.4 times versus 3.3 times, respectively). Perhaps, students did not watch their second lesson presentation video more times because it was done in the last few weeks of the semester, when they were loaded with other work. Alternatively, students may have had a better idea of what to look for in their second lesson

and therefore watched the video fewer times. One student in a postclass interview noted,

I looked at the video less the second time. That's because I started taking notes right away because [the course instructor] said we would be editing it. So I didn't watch it all the way through like I did with the first one, I guess you could say, for entertainment purposes.

We were also concerned with the amount of time that the video review and editing activities would add to the preservice teachers' workload. As shown in Table 1, however, students estimated their total time expenditure at less than 5 hours over the course of the semester.

## Student Comments From Questionnaire

Students described advantages of having video: one, to recall their lesson (43% of students included a version of this comment), to get general feedback on their teaching strengths and weaknesses (37%), and to improve their teaching practice in specific instances (32%; see Table 2). These statements suggest Lee's (2005) levels of reflective thinking—namely, recall, rationalization, and reflectivity

Commenting on disadvantages, more than a third of the students wrote that the process of being videotaped made them nervous, with some indicating that it made them extremely nervous. The following comments are representative of students' perceptions of videotaping and review that accompanied their first classroom lesson analysis:

Seeing the video, I was able to see that my lessons weren't as bad as I thought. Also, I was able to see points in my lesson where I lost students' attention.

Table 1. Students' Quantitative Responses to Survey on the Videotaping of Their Teaching

Question	M	SD	Range
Hours spent viewing, importing, and editing digital video (both lessons)	4.25 hours	2.83	1-12
Number of times watched first lesson before writing analysis	3.40 times	2.18	1-10
Number of times watched second lesson before writing analysis	3.30 times	2.33	1-10

Table 2. Students' Comments to Survey on the Videotaping of Their Teaching

Question	Responses	Proportion Giving Response
Technical issues encountered	None	.37
	Transfer and uploading	.37
	Editing	.25
	Other	.13
	Received effective help	.25
Advantages of being videotaped	Re-see the class	.43
	See my strengths and/or weaknesses	.37
	See the lesson in ways I can improve on	.32
Disadvantages of being videotaped	None	.43
	Nervousness (including some to extreme)	.37
	Disruptive and/or awkward	.12
	Too focused on look and sound	.06

Advantage: I got to see what I did well and what I messed up. Disadvantage: I was more nervous with the camera in the room.

The advantage is obvious: You don't have to try to remember what you did; you can actually see what you did.

Advantages: I was able to see myself and look closely for mistakes that I wouldn't have normally been able to remember. Disadvantages: I was focused on looks and sounds as opposed to teaching (at first).

I thought it was awful [having to be videotaped], but it is the best tool for reflecting. The video camera is seeing what your students see, and that is important—to know how you are being viewed as a teacher.

It was wonderful to take a video home right away after my lesson.

I improved from my first lesson to the second one just because I could see where my problem was.

This last student reported watching the video of the first lesson 8 to 12 times and the video of the second lesson 8 to 10 times.

In addition to students' perceptions of the value of video review, we were interested in how students perceived the editing and uploading activity that accompanied their second lesson presentation and reflective analysis. An earlier attempt at developing a

video-editing activity had suffered numerous technical problems, so we hoped that the revised process would work smoothly for students. The following comments represent students' responses to a question about the technical issues that they encountered in the editing and uploading activities.

First learning how to upload the videos. But once I learned how to do this it was rather easy to do on an Apple computer.

I didn't encounter any technical issues. It all was basic and easy to use.

Getting the video ready the first time was nerve racking, but after learning how to do it, it wasn't hard.

It was great and easy way to learn it.

I had never edited video so it was new to me but surprisingly easy to do with the instruction we received.

[Editing and uploading the video] was much easier than I expected. It was a great artifact.

A number of students who were interviewed reported that they had selected at least one video segment to illustrate a point in their lesson analysis that showed problems in their teaching that they planned to correct. The students' selection of "things to improve" clips suggests a fairly high level of reflection (Calandra et al., 2008).

## Recommendations and Discussion

A number of recommendations emerged from the pilot implementation concerning the full-scale implementation of video-editing activities in the ED-313 course and, potentially, in other field-based courses within the participating teacher preparation program. Given the lessons learned from the pilot implementation, along with best practices from emerging research, we present five characteristics of feasible and effective video-based viewing and editing activities. Each characteristic is then discussed in detail.

1. Students engage in viewing and evaluating authentic video of other teachers as a prelude to analyzing their own teaching video.
2. Students are actively videotaped during classroom teaching by the university supervisor, cooperating teacher, peer, or other capable person.
3. Students are provided with a DVD recording of their teaching immediately after presenting a lesson.
4. Students are provided with guidance for reviewing their teaching video and selecting illustrative video segments of critical incidents.
5. Students are provided with training to import and edit digital video footage<sup>3</sup> and attach video clips to their electronic portfolio page.

### Viewing and Evaluation of Authentic Teacher Video

There is a rich literature on the use of case studies in general and case video in particular. For example, Perry and Talley identify video as a “powerful tool for bringing the complexities of the classroom into focus and supporting preservice teachers in connecting knowledge and practice” (as quoted in Harford & MacRuairc, 2008, p. 1). Having preservice teachers engage in analysis of authentic case video, sometimes called *trigger video*, not only

provides instruction in the particular lens or rubric that a teacher educator is using to guide students’ reflections but can also introduce the preservice teachers to the process that they will use in analyzing video of their own classroom teaching experience.

This pilot implementation made clear that students did not understand how to prepare for selecting, editing, and uploading video segments until they had experienced the full process. However, if students were to select and edit illustrative video vignettes from trigger video, they may become more adequately prepared to select and edit video to illustrate reflective analysis of their own teaching. As Kagan and Tippins (1991) point out (as cited in Wang & Hartley, 2003), preservice teachers who viewed video of their own teaching, with direct prompts to identify and interpret signs of students’ learning and behavior, still struggled to get beyond focusing on their own lesson delivery. Kagan and Tippins found that preservice teachers could more readily overcome this egocentric focus when viewing video of others teaching, rather than video of themselves teaching.

Video analysis systems such as those described in research studies—VAST (van Es & Sherin, 2002) and video analysis tool (Rich & Hannafin, 2008), for example—as well as commercially available video analysis programs, such as StudioCode (e.g., Sportstec, 2007), offer preservice teachers a systematic way to analyze video of other teachers and then their own self-video. The approach recalls interactive videodisc-based programs used in the late 1980s that involved preservice teachers making evaluative judgments while viewing video of authentic teachers (e.g., Pape & McIntyre, 1992).

### Active Videotaping of Classroom Teaching

Part of the alienation that preservice teachers sometimes feel with the presence of a video camera and the prospect of video analysis (Greenwalt, 2008) may result because video does not fully or fairly capture the classroom experience. In Greenwalt’s (2008) study,



students were expected to videotape themselves—that is, to set up a camera on a tripod in a corner of the room and turn it on. The resulting video is inevitably of poor technical quality, with difficult-to-understand audio and a locked-down, wide-frame video—a “security camera” level of video production value. The psychological impact on preservice teachers, the reliability of video analysis, and the ultimate display of video artifacts in an electronic portfolio all strongly argue for actively videotaping teaching video.

Another consideration in classroom videotaping is that, at appropriate times, the camera should focus on the students in the class. Although it can be difficult to attain parental and institutional permission for students to appear on video, teachers who report that video led them to improve their active teaching practice did so by focusing their observations on the students during classroom activities (Powell, 2005). A teacher interviewed by Powell (2005) reported seeing an increase in pupils’ confidence during student discussions that, according to her, would have gone unnoticed without video. Indeed, noticing is seen as the critical initiating activity in video-based reflection (Sherin & van Es, 2005; van Es & Sherin, 2002). Active videotaping, especially by a university supervisor, can enhance what preservice teachers notice in their self-video—particularly in relation to becoming less teacher oriented and more student oriented.

### Providing Video to Students Immediately

The process of preservice teachers’ separating from the video self is not easy. Some students reported on the survey that they watched their first video as many as 10 to 12 times. Only after they had come to terms with seeing themselves in the teaching mode (*hot reflection*) could they engage in more *cool* and self-critical reflection. Providing preservice teachers with self-video in a format that they can watch immediately and privately may help them overcome the psychological effects of video.

### Providing Students Guidance in Selecting Video Vignettes

A few students mentioned during interviews that they became more focused in their review of the teaching videos when they became aware that they would need to edit clips. These students appeared to be moving beyond general observations to consciously looking for critical teaching moments to use as illustrative video clips, much as students in Calandra and colleagues (2008) had.

Our initial goals in this study included looking at the effects of a video-editing activity on the reflective thinking process of preservice teachers but with little guidance. However, the students’ comments on the postcourse questionnaire and during interviews suggest that most did not engage in the expected type of compare-and-contrast consideration in choosing video vignettes to illustrate critical incidents in their lessons.

Getting preservice students to engage in the depth of comparative analysis that is the goal of video-editing activities may be facilitated by having a preliminary activity that involves identifying and comparing clips from trigger video of other teachers. There is also a place for a pre-editing stage in which students transfer two or three times as many clips as they need to a video-editing program and then use the video-editing program to group and compare clips to determine which best represents the critical incident of interest. That takes the video-editing activity a step closer to the video-coding approaches described by van Es and Sherin (2002) and Rich and Hannafin (2008).

### Training Students to Edit and Upload Video

Aside from the primary benefit of supporting preservice teachers’ reflective analysis, the video-editing activity has the secondary benefit of familiarizing preservice teachers with video-based editing and uploading technologies, purposes, and processes. In addition, the identification of video segments that illustrate critical teaching incidents opens a

window to the realm of video-based qualitative research, potentially leading preservice teachers to better understand and appreciate such research. At the very least, video vignettes make, as one student put it, "great artifacts" for preservice teachers' electronic portfolio pages. Video vignettes on portfolio pages also demonstrate the role of the teacher education program in the integration of technology into teacher preparation and, ultimately, teaching practice.

## Conclusions

Our intent in this action research project was to apply research supporting the effectiveness of video-editing activities in a class on reflective teaching practice. The process of applying research-based principles inevitably points to deeper understanding of the relevant research and theory and to considerations for future research. Among the issues that may invite further research is the psychological impact of videotaping and video review on preservice teachers. A related issue is the potential differences in the psychological impact of actively versus passively recorded video.

In this pilot implementation, we did not systematically analyze the content of preservice teachers' written reflections, because the course does not use a consistent lens or rubric for reflective analysis across its multiple teachers and sections. The analysis of reflective products, for both research and curricular purposes, would be greatly facilitated by incorporating a specific lens or rubric to guide and assess students' reflections (Sparks-Langer, Simmons, Pasch, Colton, & Starko, 1990). However, our study did produce evidence similar to that of other video-editing studies (e.g., Calandra et al., 2008)—namely, that students became more self-critical and more student centered when video editing was added to video review to support lesson analysis.

There is no question that field videotaping—especially, active videotaping—requires considerable effort on the part of university supervisors. Classroom videotaping is an im-

position and, potentially, a distraction for preservice teachers. It also requires the cooperation of participating schools and teachers. Yet there are compelling arguments for the value of video-based review and editing activities in teacher education. Research and practice going back to the 1960s support a role for video activities in helping preservice teachers develop reflective thinking. Emerging research, including the implementation reported here, suggests that activities that require students to process self-video through coding or editing lead to deeper reflection.

A teacher education program's decision about the use of videotaping and editing activities then represents a cost-benefit analysis in which the costs include not only money but the time and effort of teachers and students. Videotaping equipment is far less expensive than it was in the past, but it still represents a substantial cost for enough camcorders, tripods, and wireless microphones to outfit multiple university supervisors for field videotaping. Video editing requires much less technological and curricular investment because low-cost video-editing programs are routinely available in university computer laboratories.

The additional demands on students' time for viewing and editing video are minimized when video is provided to students in a format that can be viewed on students' personal equipment and time—DVD at this point in time. Personal viewing also allows students some privacy as they overcome the shock and awe of seeing themselves teaching for the first time. Although videotaping and editing activities have a valuable role to play in helping preservice teachers develop reflective teaching skills, research points to the viability and value of incorporating video-based analysis in the ensuing stages of the professional development of teachers—for instance, the development of programs in which student teaching peers videotape and evaluate one another (Harford & MacRuairc, 2008) and video clubs in which in-service teachers share their classroom self-videos (Sherin & Han, 2004). Our experience, review of the literature, and ac-

tion research in our teacher preparation classes have convinced us that the monetary, administrative, and curricular costs of videotaping and editing activities are more than balanced by the immediate and long-term impact on developing reflective teachers. ATE

## Notes

1. In this article, we use the term *videotaping* to refer to the recording of a video signal to an analog tape format or digital format, whether that be digital tape (e.g., mini-DV) or direct-to-DVD or to a computer-formatted file on an internal or removable hard drive—or some other yet-to-be-invented digital video format.

2. Although it was easy for students to view VHS tapes of their microteaching in the earlier on-campus methods course, the department had since upgraded to mini-DV-format video camcorders. The mini-DV format produced far superior video quality, but students could not view the tapes on personal video equipment. A newer generation of video camcorders that record directly to DVD discs would appear to provide a solution. However, a review of available consumer DVD camcorder models found none that included an auxiliary microphone input jack. Furthermore, no DVD camcorder could be found that had a Firewire connection, which the Apple computers in the instructional support lab used for importing video. Therefore, Sony VRD-VC30 portable DVD video recorders were acquired and used in conjunction with existing mini-DV camcorders for the pilot study.

3. In an earlier version of a video-editing activity, the students' entire 40- to 50-minute self-videos were loaded onto computers for editing. In other teacher education programs, self-video is loaded on a server and accessed by students. For this project, the workflow reverted to an older model of offline video review and selectively transferring clips to a computer for trimming. Selective transfer requires less IT support and is more likely to be used in teaching practice.

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