



Using Digital Video for Professional Development in Urban Schools: A Preservice Teacher's Experience With Reflection

Brendan Calandra, Laurie Brantley-Dias, and Michael Dias

Abstract

This study used a variety of qualitative methods within the context of an exploratory single case study to examine the use of digital video as a means for a preservice teacher to capture personal teaching episodes and reflect on them as an integral part of her professional development. Results demonstrate how an urban preservice teacher's work with digital video of her teaching promoted reflection and the development of teacher identity. Results also demonstrated how a teacher educator was able to use the digital video as a tool to help the beginning teacher identify effective practices.

New teachers encounter a variety of challenges not limited to classroom management, subject matter expertise, teacher-parent communications, organization, locating resources, and developing rapport with students. Preparing to teach in a high need, low socio-economic status (SES) school can significantly increase this burden placed on beginning teachers. In addition, it is apparent that many beginning teachers, especially in urban environments, have a tendency to leave their school within their first five years (National Commission on Teaching and America's Future, 2003). Hence, the present study is embedded within a teacher preparation program at a large urban College of Education. Based on reform literature and national recognition of the value of reflective practice in the teaching profession, the researchers' aim is to help preservice teachers develop as reflective practitioners—professionals who can work and grow within the complexities of teaching, especially in urban contexts. This study examines the use of digital video as a means for preservice teachers to capture personal teaching episodes and reflect on them as an integral part of their professional development. This paper will present a theoretical framework, a review of some relevant literature, and an exploratory investigation of how an urban, preservice teacher's work with digital video of her teaching promoted reflection and the development of teacher identity while allowing a teacher educator to use the digital video as a tool to help the preservice teacher to identify her effective practices. The paper will conclude with lessons learned and recommendations for teacher educators who wish to integrate digital video to promote reflective practice among their preservice teachers.

Theoretical Framework: Reflection for Pedagogical Development

Reflection is an important part of professional practice and professional growth (Dewey, 1933; Schön, 1983; Zeichner & Liston, 1987, 1996), and it has lately been highly encouraged in teacher education programs, as evidenced by standards established by the National Council of Accreditation of Teacher Education (NCATE) (2001). Reflection is especially important in the development of culturally relevant pedagogy (Howard, 2003). Preservice teachers bring prior educational experiences and beliefs about teaching, learning, children, and culture to their teacher preparation experience. These

powerful influences create deeply ingrained schemas that can be difficult to alter. Much of the reflective thinking for newly practicing teachers includes evidence of changes in teacher concerns as well as development of practical knowledge (van Driel, Beijaard, & Verloop, 2001). That is, effective reflection can serve as a catalyst to reconstruct prior understandings and refine pedagogical thinking. Schön (1987) introduced the concept of "reflective practitioner," a constructivist view of knowledge building, and identified two types of reflection: reflection-in-action (thinking on your feet), and reflection-on-action (retrospective thinking). Schön's concept views "students (preservice teachers) as having to learn a kind of reflection-in-action that goes beyond stateable rules—not only by devising new methods of reasoning, but also by constructing new methods of understanding, strategies of actions, and ways of framing problems" (p. 39). Killion and Todnem (1991) extended the ideas of Schön to include reflection-for-action, the desired outcome to guide future action. Thus the reflection process simultaneously includes past, present, and future timeframes.

The key to effective reflective practice lies in helping preservice teachers look beyond the "technical" aspects of teaching to questioning their knowledge and assumptions (Van Manen, 1977; Gay & Kirland, 2003). That is, student teachers tend to focus on the technical or mechanical aspects of planning and teaching before addressing issues of student learning and challenges inherent to their work context (Trumbull, 1999). Efforts to guide the reflective process have promoted reform-based beliefs and practices among preservice teachers (Richardson, 1996) while better equipping them to interpret and resolve dilemmas in the classroom (Korthagen, 2001; Zeichner & Liston, 1996). The professional development of beginning teachers emerging from guided reflection can lead to development in teacher practical knowledge that both mirrors and shapes practice (Korthagen, 2001; Loughran, 2002; Schön, 1987).

Research has documented a variety of methods used for promoting preservice teachers' reflectivity, including journal writing (Spalding & Wilson, 2002), supervisory conferences (Zeichner & Liston, 1987), structured microteachings followed by reflective teaching journals (Sparks-Langer, Simmons, Pasch, Colton, & Starko, 1991), multimedia cases (Hewitt, Pedretti, Bencze, Vaillancourt, & Yoon, 2003), online discussions (Whipp, 2003), peer observation conferences (Collier, 1999), portfolios (Jay & Johnson, 2002), the use of critical incidents (Griffin, 2003) and video (Wang & Hartley, 2003).

"Video technologies are seen as having the potential to document the richer, more complex events and situations of teaching and learning, provide preservice teachers with the necessary context to observe, and reflect carefully on different issues of teaching and learning in action. In addition, it can also provide a tool for teacher educators to accurately capture preservice teachers' thoughts in a particular context of teaching and learning to teach" (Wang & Hartley, 2003, p. 112). Furthermore, the flexibility of digital video recordings allow for repeated viewing, pausing,

annotating, editing, and reorganizing of events that can be used as tools for reflection on teaching (van Es & Sherin, 2002; Wang & Hartley, 2003). Use of video recordings can also lend a more unbiased authenticity to reflective dialogue among peers and teacher educators.

Video-Enhanced Reflective Practice for Beginning Teachers

In a review of literature on video technology as a support for teacher education reform, Wang and Hartley (2003) reviewed and sorted 20 studies based on the relationship between video technology and teacher education reform. Among other conclusions, Wang and Hartley found that (a) there was a prevailing conceptual ambiguity of what counts as effects of video technology in the service of teacher education, (b) many studies used participants' feelings and attitudes towards the technology or self-report of what they learned as a way to assess the effects of video and technology rather than standards and principles underlying the kind of teaching desired by reformers, and (c) few investigations asked preservice teachers to record examples of what *they* believed to be excellent teaching (2003). See Table 1 for a summary of Wang and Hartley's review. The current study would fall under Wang and Hartley's domain of "Support for transforming existing beliefs and ideas."

Currently, few studies exist on using digital video to reflect on authentic, personalized teaching events (Copeland & Decker, 1996; Spurgeon & Bowen, 2002; Struyk & McCoy, 1993; Van Es & Sherin, 2002; Wang & Hartley, 2003). Spurgeon and Bowen (2002) examined the effects a process of digital video editing (for a multimedia portfolio) had on the quality of preservice teachers' critical reflection. They randomly assigned 22 participants to one of three treatment groups: (a) control, (b) experimental-reflection, and (c) experimental-reflection with multimedia (video) production. Although there were no significant differences between groups, some difference in the level of reflection was found between control and experimental groups.

Van Es and Sherin (2002) focused their research on teachers' ability to notice and interpret classroom interactions—and ultimately use those interpretations to inform pedagogical decisions. In their study, a group of 12 interns enrolled in an alternative certification course were asked to videotape their instruction as a source of reflection. They were next asked to complete a written analysis in which they discuss the teaching and learning that occurred in a short narrative form. Six of the participants engaged in three sessions surrounding the use of the video analysis support tool (VAST). Participants learned how to use the video analysis scaffolding tool and discussed how they might use it to examine their own practice. After examining the VAST participant reflection papers, Van Es and Sherin found that using VAST did support their learning to notice classroom interactions in ways that were recommended by mathematics and science reform efforts. Rather than use video to merely offer teachers renderings of teaching and learning created by experts with the goal of

Table 1: Relationship between Teacher Education Reform and Video Technologies

Support for transforming existing belief and ideas	Self-examination Reflection on authentic teaching Modeling desired practice
Support for acquiring pedagogical content knowledge	Exemplary representations of subject matter in action Developing flexible pedagogical thinking in context
Support for developing pedagogical understanding of different learners	How to observe and interpret children's learning How to interact with children

making that tacit knowledge available to novice teachers, they suggested that teachers could collect, edit, and reorganize video of their own practice. This would enable teachers to choose specific segments to view based on a particular goal, and allow them to take a more objective view in order to better study teaching and learning (Van Es & Sherin, 2002). Building on Van Es and Sherin's work, our study explores the use of video editing technology for promoting reflective thinking of a beginning teacher in an urban school during the student teaching experience.

The researchers' aim was to help novice teachers develop cognitively as reflective practitioners—professionals who can work and grow within the complexities of teaching—especially in urban environments. One way to do this is by facilitating preservice teachers' use of digital video as a tool for recording and editing images of their teaching practice. This is in accordance with literature describing the importance of teachers' ability to reflect on their practice, and it is informed by some recommendations on the way in which digital rendering of teaching practice can augment teachers' ability to reflect. The researchers explored the potential for digital video editing technology to help a preservice teacher to (a) reflect on teaching practice and student learning, (b) promote reflection at a level beyond the technical aspects of teaching, and (c) enhance reflective discourse with a mentor teacher.

Method

This research used a variety of qualitative methods within the context of an exploratory single case study. As suggested by Yin (2003), the case study design is an appropriate way to investigate the causal links and the context relating to an intervention. It is also useful when there is little or no control over the behavioral events. We collected survey, interview, and video data to examine the use of digital video editing as a catalyst for a pre-service middle childhood teacher's reflective, reform-based practice. Data collection began in September 2004 and concluded in April 2005.

Participant and Site Description

In order to select our cases, we sent e-mail to 18 middle childhood education students who were enrolled in their final student-teaching practicum asking for volunteers to participate in this pilot study. Two student-teachers agreed to participate; however, one withdrew from the study after the second week, citing a conflict with her mentor teacher regarding videotaping the class. As part of their program of study, the participants completed a required Technology for Educators course that served as an introduction to teaching methods, computer skills, and technology integration. The remaining participant earned a B in the course; thus, we felt that she had basic computer skills. Nevertheless, we administered an adapted version of the Survey of Teachers' Attitudes Toward Computers (TAC) (Christensen & Knezek, 1997) prior to continuing as she would be required to work with digital video hardware and software. Internal reliability for the eight-part, five-point Likert scale survey ranged from $\alpha = .84$ to $\alpha = .96$. Attitudinally, the participant did not have any problems with computers. (See Table 2.)

Table 2: Survey of Teachers' Attitudes Toward Computers

Scale	Score
Part 1- Interest	4.6
Part 2- Comfort	4.9
Part 3- Accommodation	4.7
Part 4- Interaction (Electronic Mail)	4.9
Part 5- Concern	4.9
Part 6- Utility	4.6
Part 7- Absorption	3.8
Part 8- Significance	4.2

The participant in this single case study was Talia (pseudonym), a 37 year old African-American female. Talia earned a bachelor of science in political science and government and worked in various government positions for many years. She decided to pursue a career change and was completing a bachelor of science degree in middle childhood education (BSEd) with areas of emphasis in science and language arts at the time of the study.

For her student teaching practicum, the university assigned Talia to teach with a cooperating teacher, Ms. Byrdsong (pseudonym), at Carters Creek Middle School (pseudonym), located in an urban setting in a metropolitan school district of a large city in the southeastern United States. At the time of the study, Carters Creek Middle School was a Title I school with 996 students enrolled in grades 6 through 8. Ninety-nine percent of the students were Black and one percent was Hispanic. Sixty-seven percent of the students received free or reduced lunch. According to the state's School Report Card data for the 2003–2004 academic years, 78 to 80 percent of the students met or exceeded the state's measurable objectives; however, Carters Creek did not make adequate yearly progress and was on Needs Improvement Status at the time of this study.

Talia planned for and taught two 6th grade earth science classes and two 8th grade physical science classes at Carters Creek. One 6th grade class consisted of students who qualified for the Talented and Gifted (TAG) program. These students scored at or above the 85 percentile in science on a nationally-normed test, and were recommended by their 5th grade science teacher and earned a "B" or better the previous year in science. Students in the other classes varied in their ability levels. Talia's class size ranged from 12 to 20 students with the TAG class being the smallest.

Procedures

Talia attended a one-on-one two-hour workshop on digital video capture and editing in October with one of the researchers. The researchers chose Apple iMovie software as the tool for capture and editing due to its ease of use and low-cost availability. The preservice teacher was provided with an Apple PowerBook G4, a Sony Handycam Digital Camcorder, digital videotapes, and a tripod. She was then asked to film herself during two separate teaching cycles, edit each cycle for teaching incidences that were meaningful to her, and discuss the edited clips with her cooperating teacher. These cycles occurred within a six-week period towards the end of the participant's student-teaching practicum in the Fall 2004 semester. As part of the university's requirements, cooperating teachers conduct observation cycles with the preservice teacher consisting of a pre-observation conference, the observation, and a post-observation conference. The cooperating teacher was provided with a suggested conferencing protocol to use with Talia for the video-taped lessons (see Appendix A, page 145). Talia was asked to edit the videotape and use this with her cooperating teacher during the post-conference discussion. However, she only used the edited tape during the first teaching cycle. Both the pre- and post-conferences were audio-recorded and later transcribed.

At the end of Talia's student teaching practicum, she provided us with the audio-taped conferences and full videotape teaching cycles as well as the edited cycles. We also debriefed with Talia about her experiences using the video and iMovie technologies for reflection and teaching. After reviewing the transcripts and videotapes, we conducted a final interview (see Appendix B, page 145) during which we showed Talia her first edited teaching cycle and asked her to comment on her instructional planning and decisions related to that lesson. It was intended that this data set would help support some of the more cryptic findings from the first three sets of transcripts. The method used at this point resembled stimulated recall (Gall, Borg, & Gall, 1996) as the researcher reviewed the tape with Talia and "asked her to describe the thoughts and decisions that were occurring during that episode" (p. 598). Both the debriefing conference and final interview were audio-recorded and transcribed.

Data Analysis

In accordance with case study methodologies, (Miles & Huberman, 1994; Yin, 1998) pattern matching and within-case analysis was used to address the research questions. The unit of analysis was the participating student-teacher, Talia. Transcripts from the post-teaching conferences and the final interview were coded and analyzed twice. First, two of the researchers independently analyzed transcripts from the post-teaching conferences and the final interview using apriori coding based on the seven-part critical reflection framework (see Appendix C, page 145) developed by Sparks-Langer, Simmons, Pasch, Colton, and Stark (1991). The researchers determined the coded data segments to be acceptable if there was no more than one level of difference; the scores matched 92 percent of the time. Both the full videotape lessons and the edited critical segments were reviewed and observation notes taken. Second, one of the researchers applied open-coding to all transcripts and observation notes collected in this study. Boyatzis' (1998) thematic analysis was used as a guide. During each analysis phase, the researchers looked for discrepant evidence and rival themes to assure the rigor of the analysis. Member checking (Lincoln & Guba, 1985) was used throughout the analysis phase to verify the data and validate the findings. Triangulation within and between data sources provided a holistic picture of the phenomenon and provided corroborating evidence (Creswell, 1998) for generally converging conclusions discussed later in the paper.

Results

We have organized the results into two sections: the first, Level of Reflective Pedagogical Thinking, was derived from analyzing the pre/post-conferencing and final interview data according to the *Framework for Reflective Thinking* (Sparks-Langer et al., 1991); the second, Emerging Themes, was established by using open coding on all data sources to identify predominant themes.

Level of Reflective Pedagogical Thinking

During the pre- and post-conference discussions with the cooperating teacher, Talia's functioning was between Levels 2 and 3 on the *Framework for Reflective Thinking* (Sparks-Langer et al., 1991). In general, Talia described teaching events using a mixture of layperson descriptions (Level 2) while applying some pedagogical terms (Level 3) to her actions, and occasionally explaining her choice of strategies with personal preferences given as the rationale (Level 4). Comments typical of Level 2 included, "I'm going to let them do some more of their own little experiments with a tuning fork and the different ranges so they can play with that and see how it goes." A typical Level 3 response is indicated in the following: "... We're going to do a couple of those hands-on experiments and then I'm going to try and scaffold [using] what they've learned from the readings and from there see if they can put together their readings with their regular life." Level 3 responses occurred more frequently in the pre-conference than in the post-conference discussion between Talia and Ms. Byrdsong. Level 4 responses most often occurred during the post-conference and typically illustrated Talia's rationale for modifying future iterations of the lesson she had just presented: "Next time [I teach erosion and weathering], I think I'm going to let [the students] do a little presentation because I had a couple of people who did research and I think they got a lot out of it." There were some differences in her level of reflection from teaching cycle 1 to teaching cycle 2 in the pre-conference interviews. However, there was no difference in the scores for the post-conference interviews. In fact, Talia was slightly less reflective from the pre-conference to the post-conference interview for teaching cycle 2.

During the final interview using the post-conference protocol, Talia's reflection was between a Level 3 and Level 4. Again, Talia described teaching events using a mixture of layperson descriptions (Level 2) and some pedagogical terms (Level 3) while occasionally explaining her choice

of strategies with personal preferences given as the rationale (Level 4). However, she also demonstrated conditional/contextual thinking (Level 6) 20 percent of the time and discussed social/ethical issues (Level 7) on occasion. Comments typical of Level 6 included, "I think everybody is different, but they have their little role in the classroom. I had one who's going to be a minister someday, and he's more oratory. He wants to get up and give a speech. So I planned things for him to do that." Talia's Level 7 comments were prompted by the researcher inquiring about her use of the term "boy" with an African American male in her 8th grade class on the videotape and her overall interactions with the students. The following highlights Talia's pedagogical understanding of diverse learners: "I did part of my practicum at Washington Middle and it's a different vocabulary there talking to the African American students as opposed to the Caucasian students...it's a different language, and some people are bi-lingual and some people aren't and ...some kids ...can get into the school talk and thrive and some kids it takes a while."

Emerging Themes

In order to gain more insight into Talia's reflection on practice, we used open coding to analyze her digital video, conferencing transcripts with Ms. Byrdsong, as well as the debriefing interview and final interview with the researchers. From this, two themes emerged: development of teacher identity and extending reformed-based practice. These themes parallel the contrasting emic/etic way of knowing prominent within qualitative research.

Development of a teacher identity: Negotiating a satisfying role.

Firstly, from the emic or participant's perspective (in this case Talia), the opportunity to view various aspects of teaching practice during reflective analysis provided a clear image of professional identity as a caring, fulfilled teacher. In this way, digital video made explicit to Talia the teaching skills and dispositions that helped her negotiate a satisfying role as a beginning teacher.

During the debriefing interview Talia was asked about her experiences using the video and iMovie technologies for reflection and teaching.

Researcher: Did seeing yourself on the video, did you think that impacted your (reflection)?

Talia: Yea, ...I didn't realize I was smiling as I'm [teaching], and I was 'Whoa, I must be enjoying it' cause I'm just in the moment, going 'Okay, what can we do today guys?' I'm leading their thinking, and I hadn't really thought about the process.

The video footage enabled Talia to witness her joy of teaching. Likewise, it provided a medium through which she could examine students' reactions to the lesson. Talia shared, "I think it made me much more aware and it was interesting because it was like looking from the back of the classroom. I could see the kids and generally I made mental notes of who I wanted to get to talk more." It also helped her to better recognize student needs, such as those who were not participating sufficiently, and those who were having difficulty comprehending the science concepts. Talia explained, "You know, one of the girls wasn't saying anything and I need to work with her. Some of the kids were good in some areas, and I had to work with them on other areas."

While viewing the video, Talia explained how and why she was effective in communicating with students. For example, she identified herself as "a mother figure" and suggested that both her age and ethnicity (which was the same as those of her students) enabled her to connect with the students in ways that many of her peers (who were younger) and the researchers (who were of a different ethnicity) could not:

We were talking one day, and I told one of the boys, 'cause he was so militant, and he was like thirteen, and I was like, 'Okay you're the angry black man.' And he

responded, 'Well if you change that for the proud black man then you'd have it right' and I was laughing and I said, 'You know, you're too much!' but he appreciated the fact that at a certain level I could say things that you couldn't say.

Her identity as a nurturing teacher who knows the children and attends to their individual needs characterized several interactions that Talia discussed from the video.

I think everybody is different, but they have their little role in the classroom. I had one who's going to be a minister someday, and he's more oratory. He wants to get up and give a speech. So I planned things for him to do that.

Talia's identity as a science teacher was developing through her interactions with the students. As a document, the digital video confirmed for Talia the satisfying role she experienced.

Extending reformed-based practice: Inquiry methods. Secondly, from the etic or outsider's view, digital video provides a tool that allows a mentor teacher or university supervisor to help the beginning teacher identify effective practices, consider the causes and limitations of these successes, and gradually expand her individual and contextualized expression of reform-based practice. For example, Talia's frequent use of questioning, demonstrations to foster students' explanations, and dialogue intended to help students relate science to everyday events represent features of inquiry pedagogy that should be analyzed and expanded upon (National Research Council, 2000, p. 29).

Although Ms. Byrdsong was given a conferencing guide, she used very few of those questions with Talia. Thus, the conferencing discussions between Talia and Ms. Byrdsong were generally about the technical aspects of the lesson (e.g., goals, strategies, helping students make connections). Talia's instruction typically directed children to the "big ideas," thus promoting science literacy. For example, during the physical processes unit of earth science Talia said, "I want them to get a good basic understanding of [erosion]."

In planning for and reflecting on her lessons, she discussed using questioning strategies as a scaffold to build on prior knowledge: "I decided to do a combination of asking questions. I asked them what they thought they had learned beforehand so I could build upon that knowledge and build scaffolding ... [before] our hands-on experiments."

Talia also described her activities as "hands-on experiments." In the lessons on sound and erosion that Talia videotaped, her hands-on instruction took the form of a teacher-directed demonstration with dialogue. The smaller class sizes allowed her to invite individual participation. Her emphasis in doing "hands-on" science teaching seemed to be the development of a shared experience that would allow her students to relate science to their "everyday world." For example, in the sound lesson with the 8th grade students she wanted to help the students experience sound and "see its repercussions." She explained, "...We're going to use tuning forks. And I'm going to let them do some of their own experiments with it so they can see the different ranges. We're also going to use a cane so they can see how the blind use sound to get around." Though Talia used the term "experiments" when describing her lessons, the videotaped lessons evidenced a teaching method characterized by questioning and teacher-student dialogue promoted through her use of models and relevant examples.

Talia discussed strategies that she used to make science content meaningful to students either through examples that connected to "everyday life," community or news events, or by building on students' interests. For example, in her post-conference lesson on erosion she commented, "I asked them questions like, 'Have you ever seen [erosion] happen?' They had seen the ...building of the runway [at the airport] and what happens

when they had to go in [and take out the trees.]” Students in her class lived in a community located next to a large international airport. They had witnessed the effect of a newly constructed runway on their neighborhood landscape. Her example connected with them on a personal level.

Discussion

Does the video help Talia to reflect on teaching practice and student learning?

There exists some evidence of Talia’s ability to reflect at a level beyond the technical as measured by the Sparks-Langer framework and examinations of the transcripts. The question of whether she would have been able to do this without the use of video is difficult to answer given the current data set. We know that the mentor teacher did not foster reflection in post-conference interviews based on the brevity of questioning and the fact that she did not follow the protocol. For example, Talia was slightly less reflective from the pre-conference to the post-conference interview for teaching cycle 2. This might be attributed to a shortened post-conference discussion as reflected in the length of the transcript. In other words, Talia was not given adequate time and prompts to reflect on the lesson. This is a factor that is difficult to predict or control and may have had an adverse effect on the data. As protocol was not followed by the mentor teacher in their conferences, it was difficult at first for the researchers to discern whether or which parts of their (Talia and mentor teacher) discussion may have been augmented by the presence of video. This is in part why the researchers decided to conduct a second, final interview with the participant that involved a one-on-one stimulated recall session with the participant to extend the emic perspective on the data.

In the final interview it became evident that the video editing task of “picking meaningful teaching incidences” was too general or may have needed more support from the mentor teacher. Talia found choosing these incidences very difficult; more salient directions would probably have helped. Talia repeats twice that she just wanted to find incidences that were “cohesive.” That likely means she was trying to find exemplary segments for the researcher rather than events that were meaningful to her. In order to better investigate the effect of being exposed to video of self-teaching on reflection, the researchers would likely need to ensure scaffolding of participants’ reflections. This would be in agreement with findings from past studies that examined scaffolding video reflection of self-teaching (Crawford & Patterson, 2004; van Es & Sherin, 2002).

Although much of Talia’s reflection could be classified as “reflection-on-action” (Schön, 1987), she does exhibit what Killion and Todnem (1991) call “reflection-for-action”—the desired outcome to guide future action. This was evident in exchanges such as the following:

Researcher: What would you change for the next time you teach this exact lesson?

Talia: Well, I think this worked well with them. I think I’d probably put the sand and the ice as a part of the lab for them to do. ...I just happened to have, I kept the things we had in another experiment and we had newspaper. I think I’d make sure that that was part of it. Looking at this, I would go back and tell them to label it. Like, I made this indentation in the sand. I’m pointing to what areas—tell me what it is. Make them think about it.

Talia mentions using sand and ice as demonstrations for the students multiple times in her final interview and suggests this is something she would likely include in future lab sessions.

Does the video help Talia look beyond technical aspects of teaching?

Talia’s level of reflection was not extraordinarily high during her first two reflections; it did, however, increase during the final interview/stimulated recall. Talia was able to look beyond the technical aspects of

teaching, and was able to make connections between theory (scaffolding) and practice in the following exchange:

Researcher: What do you mean by “scaffold”?

Talia: Well, I would talk about, I’d start off talking about the different forces of nature, like erosion, wind, and just say what do you think is the most powerful? Like, people would say “lightning.” And I’d say well what do you think causes the most damage? So we’d start off with that, just to make them start thinking about it.

R: That’s one of those education words. What does that word mean?

T: Well it’s like scaffolding on a building. You build up, like you put the framework there, and it’s slowly built up like a lattice and then you keep building around it.

R: Where did you get that idea?

T: Well, actually from my education courses...

Whether or not her use of digital video to capture her teaching practice facilitated deeper reflection, separate from that evidenced in the final interview, is difficult to determine, due to the brevity of the treatment and the above-mentioned limitations.

More longitudinal data would be needed in order to examine lasting change on Talia’s level of reflection (Sparks-Langer et al., 1991). This would be in agreement with recommendations made by Wang and Hartley (2003).

Talia’s reflective discourse during the final interview reached a remarkably high level in a discussion of racial and cultural identity. This discussion was overtly prompted by both Talia and her interviewer after viewing a particular incident on the unedited video. Interestingly, this was not an incident that Talia found relevant, as her classroom was monocultural, but the interviewer was of a different culture. The dialogue is as follows:

Researcher: (prefacing that this is a different observation and question that relates to my struggle as a novice teacher in an urban school) I noticed, it struck me in the video when one kid twanged the rubber band box, but he had it upside-down, and you just said, “Not that way boy!” (others laugh) and I remember one time as a beginning teacher (refers to second researcher in room) called a student “boy” and he was very offended.

Researcher 2: Oh that was really bad.

Talia: I guess that it’s much different if I say it than if you say it.

R: I want you to elaborate on that.

T: Well it’s just much different if you as a White man say “boy,” you’ve got 300 years of history against you, and me as an African-American saying “boy,” I’m like a mother figure. It’s not a big deal. Also, I think it’s a generational thing, whereas, I have older friends. You know, if you’re ninety something years old and you call someone “boy” who’s forty, it’s not a big deal. And you know, back in the day no one would take it as seriously, but it’s a hot button.

R2: And it was for me, unknowingly, not meaning to condescend, and I learned that fast.

T: ...I did part of my practicum at Washington Middle and it’s a different vocabulary, whereas talking to the African American students as opposed to the Caucasian students and what they would, it’s a different language, and some people are bi-lingual, and some people aren’t

and that's just basically some kids are, you know, they can get into the school talk and thrive and some kids it takes a while. It's a different language. One of my classmates felt like a teacher was yelling. I walked in the classroom and "that's not yelling, you wait." She wasn't yelling, she was just getting their attention. She was just being loud. That's not yelling. Yelling is anger. That was just getting their attention. I think it's just more subtle differences, there's like more body language, I looked at them like, "you know you shouldn't be doing this," and it's more body language, as opposed to a direct command cause if you say, and it depends on the kids, cause even with Caucasian kids it's a different level of things. If I said, "Oh, don't you think it would be nice if you picked up your toy?" They'd go pick up their toy. You say that to some one else, "No." (That child responds to) "Clean up now."

R: So what students respond best to that more directive type?

T: Um, it's kind of hard to explain. It's more of a feel.

R: It's not a racial thing?

T: It doesn't really have to be. Cause it can be a class thing too. It gets muddled sometimes, but it can be a class thing. With certain kids it just depends, so it's kind of more of a feel.

In order for preservice teachers to create meaningful instruction that is culturally relevant, they need to develop deeper self-knowledge and acknowledge how their own backgrounds and beliefs might shape their teaching and their students' self perceptions (Howard, 2003). Through use of the stimulated recall method combined with observing herself on video, the depth of Talia's discourse with her interviewers in the final interview reached a level of awareness of her own culture and the culture of her students.

Does the video enhance the reflective discourse with her mentor teacher?

Transcripts between Talia and Ms. Byrdsong do not indicate that video alone promoted reflective discourse between mentor and protégé. Talia and Ms. Byrdsong only used the edited clips once during the post-conference discussion for teaching cycle 1. Although there was some evidence of an increase in the level of reflection from pre- to post-conference in teaching cycle 1 (using edited video) and a decline in reflection in teaching cycle 2 from pre- to post-conference (without the use of edited video) as indicated in Table 2, we cannot conclusively attribute this to the use of edited video as Ms. Byrdsong did not follow the pre-/post-conference interview guides.

Nevertheless, the transcript above seems to indicate that viewing video footage together enabled Talia and her interviewers to become engaged in a culturally relevant reflective dialogue. This was made possible by both the quality of the reflective final interview using the post-conference guide and the use of the video as a memory cue. This moment would likely not have been preserved for discussion otherwise, as Talia did not find it important for inclusion in an edited segment. Talia, throughout her final two interviews, appears to be pulling from both memory and from the video.

Researcher: Did seeing yourself on the video, did you think that impacted your (reflection)?

Talia: Yea, that was kind of interesting. I was just basically, I didn't realize I was smiling as I'm doing it, and I was "Whoa, I must be enjoying it" cause I'm just in the moment, going "Okay, what can we do today guys?" I'm

talking them off of thinking, and I hadn't really thought about the process. My own little habits that I had and I'm like, "Oh, I've got to stop doing that, I don't want to be doing anything to distract them" and it just made me a little bit more aware that sometimes I have little habits that are distracting. It was really good for that. It was interesting. I had never really thought to tape myself and see what goes on with it. I thought it was kind of interesting. We did a practice tape and I was like, "Look at this, I cannot believe I said this!" (laughing)

This phenomenon does support the use of video as a means of preserving authentic personal events for later reflection that can both support and challenge one's recollection and reflection.

Students have significant influences on teacher identity development (Proweller & Mitchener, 2004). Although not directly related to the research questions, the emergent themes indicated that the video affirmed Talia's satisfaction in her new role as teacher, while also affording a view of her ability to engage children in learning science. Because video technology captures a record of student-teacher interactions, and use of these tools is rapidly expanding, it follows that teacher reflections supported by digital video data offers an unprecedented opportunity for beginning teachers to accommodate their emerging role.

Conclusion and Recommendations

Using edited video as a catalyst for beginning teacher reflection has broad implications for teacher educators. The model of "realistic teacher education" that favors a problem-based approach to teacher development could be supported through the use of edited video throughout the pre-service teacher's field experiences. Working with digital video in this manner, however, demands not only reorganization of personnel and resources in teacher education institutions, but this approach also suggests that teacher educators will need to take on new roles as described by Korthagen and Kessels (1999) to facilitate an approach that starts with the problems encountered in teaching and moves forward to resolve them by drawing on educational theory.

First, the proper equipment needs to be purchased and managed. Each teacher candidate should have access to the necessary equipment for filming, capturing, and editing his or her video footage: (a) a digital video camera, (b) a tripod, (c) a computer loaded with video editing software. It is a good idea to establish a system for equipment acquisition and management that does not demand a large amount of time or effort from teacher educators, preservice teachers, or cooperating teachers in the schools. Although this may not always be a feasible option, Talia was provided with her own set of equipment to work with for the duration of the study. Other models for equipment distribution could be either sets of equipment managed by schools and made available to preservice and cooperating teachers at the time of use, or sets of equipment made available for checkout to preservice teachers and managed by the teacher education institutions. It is a good idea to conduct a pilot test with a limited number of students to establish which system works best for a given student teaching context. Training on how to use the video technology and associated hardware and software should also be offered. We suggest incorporating this seamlessly into the teacher education curriculum (for example, as a part of their technology course). Talia was provided with personalized training, as she was an individual volunteer for the study, but still required technical support during the study. This kind of support should also be made available for the duration of the video reflection experience.

One limitation to this study was lack of "buy-in" from the preservice teachers and their mentors. We met potential participants for the first time as we introduced the study to them. We were hence limited by

the number of preservice teachers who volunteered to participate. One suggestion for overcoming this barrier is to work more closely with the teacher education faculty responsible for the methods courses to introduce reflective practice and digital video editing early into the preservice teachers' teacher preparation experiences. This would enable preservice teachers to become comfortable, confident, and competent with both the reflection process and the equipment prior to the student teaching. This could increase not only the number of participants but also the quality of their reflections.

Furthermore, those teacher educators who would eventually facilitate the video reflection experience should establish rapport with the mentors prior to the video enhanced student teaching. This could include taking more time to explain the process and value of the video reflection. We felt that Talia's cooperating teacher was not convinced of the benefit of Talia using video for professional development. Ms. Byrdsong also may have felt threatened by the presence of recording equipment in her classroom. For this reason, we had difficulties meeting with her concerning the study. We also found that she did not follow protocol when debriefing with Talia. Cooperating teachers in the schools need to be made aware of the benefits of video-enhanced reflection. It may also help to make salient the fact that working with video is a regular, required part of the preservice teacher's professional development—perhaps even with an official endorsement of the project from a school administrator.

Our work with Talia offers important implications and clarified questions for research on teacher reflection enhanced by video editing technology. Shortcomings in Talia's identification of meaningful teaching incidences and in her mentor's adherence to the conferencing protocol produced some insights. First, preservice teachers need guidance in identifying meaningful incidences in their teaching. Our work with Talia indicates that teacher educators need to somehow operationalize the identification of an event or incident critical to the beginning teacher's development. Doing this, however, runs the risk of being too prescriptive, constraining the potential of the teacher to identify salient moments of teaching that might guide productive dialogue with mentoring colleagues or university supervisors. Subsequent studies of this nature should explicitly define "meaningful teaching incidences" for participating teachers and offer examples vignettes of two types: dilemmas or problems of teaching to be resolved and instructional situations that exemplify effective practice.

A final implication relates to the responsibility of the mentor teachers to guide reflective discourse. Productive mentoring relationships are not always available to beginning teachers, and the desired enactment of conferencing protocols, such as those central to this study, are not always realized. Thus, providing the beginning teacher with a reflection guide to use in conjunction with the edited video may be a solution to ensure the necessary dialogue between the beginning teacher and mentor.

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Brendan Calandra is an assistant professor of instructional design and technology at Georgia State University. Since his introduction to the field, Brendan has been teaching, doing research, writing for peer-reviewed publications, presenting at national conferences, and consulting with organizations such as BMW, The Board of Regents of the University System of Georgia, and CARE—the global relief organization on the purposeful use of digital media for learning and performance improvement. For more information see <http://msit.gsu.edu/calandra>.

Brendan Calandra
Assistant Professor of Instructional Technology
Georgia State University
Middle/Secondary Education & Instructional Technology Department
P.O. Box 3978
Atlanta, GA 30302-3978
bcalandra@gsu.edu

Laurie Brantley-Dias is an assistant professor of instructional design and technology at Georgia State University. She is responsible for coordinating undergraduate preservice teacher education technology integration courses, and teaches courses in instructional design, technology integration, and research in instructional technology. Her research with teachers focuses on using technology for professional development and designing instruction for technology integration to promote meaningful learning.

Laurie B. Dias, PhD
Assistant Professor
Middle/Secondary Education & Instructional Technology Department
Georgia State University
P.O. Box 3978
Atlanta, GA 30302-3978
lbdias@gsu.edu

A 14-year veteran of secondary science teaching, Mike Dias now coordinates the biology education program at Kennesaw State University. His research with teachers centers on mitigating the theory-practice gap through problem-based approaches to teacher development that promote reflective and progressive teaching practices.

Michael Dias, PhD
Assistant Professor of Science Education
Kennesaw State University
Dept. of Biological and Physical Science
1000 Chastain Rd., Kennesaw, GA 30144
mdias@kennesaw.edu

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Appendix A

Mentor-Protégé Conference Questions

Pre-Conference

What is the goal or objective of this lesson? What would you like your students to learn?

How will you discover what your students already know about key concepts in the lesson?

What pre-conceptions might your students have about this concept?

What kinds of teaching strategies will you use?

What are some good questions or questioning strategies to use?

How will you encourage students to construct their own knowledge?

Describe the kinds of thinking students will do in this lesson?

How will you assess the lesson?

How will you account for different learning styles, cultural, or gender differences?

Post-Conference

How do you think the lesson went?

What was the most effective part of the lesson? Why?

What would you change for next time?

Did the students respond the way you thought they would? Why or why not?

Assess the quality of student thinking during this lesson.

Based on this lesson, what would you like to continue working on in your teaching?

In this lesson, how did you facilitate learning, rather than transmitting information?

Questions Promoting Reflection (for use in Pre or Post-Conference)

What pleased you most about this lesson?

Can you talk more about that?

Why do you think that happened?

What evidence do you have for that?

Give an example...

Has anything like this happened before?

Help me to understand...

What has worked for you in the past?

What have you tried so far?

What did you take into account in planning this?

What did you expect would happen?

What conclusions can you draw?

Anything else

Appendix B

Final Interview Guide with Videotape

After viewing the edited video segment,

How do you think the lesson went?

What was the most effective part of the lesson?

Why did you organize it this way?... explain.

Did you make any decisions during the lesson when it was going on?

What would you change for next time?

Did the students respond the way you thought they would? Why or why not?

Assess the quality of student thinking during the lesson.

What evidence do you have for that?

Based on this lesson, what would you like to continue working on in your teaching?

In this lesson, how did you facilitate learning?

What did you take into account when planning this lesson?

Probes:

What were you thinking when....

Give an example....

Help me to understand....

Appendix C

Framework for Reflective Thinking

Sparks-Langer, Simmons, Pasch, Colton, & Starko (1991)

Level	Description
1	No descriptive language
2	Simple, layperson description
3	Events labeled with appropriate terms
4	Explanation with tradition or personal preference given as the rationale
5	Explanation with principle or theory and consideration given as rationale
6	Explanation with principle/theory and consideration of context factors
7	Explanation with consideration of ethical, moral, political issues