Using Digital Video to Re-Think Teaching Practices

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Abstract

Video is a powerful medium for communication and learning. With increased accessibility to digital video production equipment, an important question is what role teacher production of video might have in teacher education. Using the lens of design that highlights authenticity, efficacy, and expressiveness as goals, 38 in-service teachers designed videos for use in their classrooms. Interview data investigating the outcome of this activity suggests an effect on teacher thinking in five areas including: (1) instructional outcomes; (2) instructional design; (3) classroom performance; (4) process versus product; and (5) considering the needs of all learners. Data also highlights cautions about the practical use of these technologies in the daily work of teachers.

Most research on video and its use in teacher preparation and professional development falls into three categories: First, using video technology to foster analysis and reflection on teaching practices in which teachers watch themselves or others teaching and employ techniques of analysis and criticism to learn more sophisticated pedagogy or to deepen understanding of teaching actions (Capraro, Capraro, & Lamb, 2001; Clarke & Hollingsworth, 2000; Finn, 2002). Second, using video technology to make and use cases for analysis (Beck, King, & Marshall, 2002; Hughes, Packard, & Pearson, 2000; Stephens, Leavell, Fabris, Buford, & Hill, 1999). The field of case-based approaches to teacher education is enormous, efficacious, and creative in the use of video technology to design new, innovative teaching and learning scenarios. Third, using video to produce unique teaching materials for classroom use (Howard, 2001; Van Horn, 2001). These efforts include using teacher designed videos to supplement existing curricula, using video as a pedagogy in which students make videos to demonstrate their understanding of course content, and using digital videos to support student engagement with content. Digital video technology continues to become more accessible in cost, usability, and flexibility making it an increasing area of exploration and innovation.

Recently, we've seen a fourth genre of research exploring the unique effect that video technology has on the thoughts, dispositions, and values of teachers. Wong, Mishra, Koehler, and Siebenthal (2003) engaged teachers in the production of digital videos to communicate emotion, aesthetic experiences, and transformative subject matter ideas. Starting from Dewey's (1934) aesthetic theory and the notion of fostering transformative aesthetic experiences centered on powerful ideas, practicing teachers used video technology to try to create aesthetic experiences for viewers—experiences that simultaneously taught key concepts and that engaged viewers in powerful, moving experiences. For example, one high school computer teacher trying to communicate the potentially isolating effect of technology use created a video showing a lone typist in a darkened room, camera focused on the fingertips while words of loneliness and isolation slowly appeared on the screen. The short video was equally provocative and compelling—bordering on what Dewey would call *an* experience. The goal of this work was to encourage teachers to have higher standards for an educational experience and to use digital video to try to create potent experiences that taught key concepts.

Our research is related to this newest path of inquiry: video construction as a means to re-think, re-value, and re-consider teaching practices. We believe digital video production affords teachers an opportunity to reconsider many of their fixed assumptions about teaching and learning. Because there is some similarity between planning, filming, and editing a digital video and planning, executing, and evaluating classroom teaching, teachers find the two acts similar enough to learn about one from the other. Through working in digital video media, we believe teachers become more open to re-thinking and re-tooling their practice.

Design as a Theoretical Framework for Teacher Education

Our ideas about teacher education are derived from conversations in design-based learning (Harel & Papert, 1990; Kafai & Resnick, 1996; Perkins, 1986) and design in teacher education contexts (Girod, 2001; Mishra & Girod, 2006; Mishra & Koehler, 2003). In particular, three characteristics or qualities are essential for our vision of design in teacher education. First, in teacher education contexts design refers to the creation of an *authentic product* to solve meaningful educational challenges. For example, good teachers commonly re-tool existing curriculum materials to fit their instructional needs and pedagogical dispositions. In this way teachers are designers of curriculum, not just passive users. Our goal, therefore, is for teachers to design *authentic* videos useful for teaching and learning in real classrooms.

The second characteristic is specific to the act of design in that design, broadly speaking, is "structure adapted to a purpose" (Perkins, 1986, p. 2). Perkins' definition captures an essential quality of design: it is a process of constructing artifacts that exhibit "goodness of fit." This notion of "fit" must be analyzed through "usability tests" in which designers consider the purpose of the product, use in context, and anticipate and negotiate misuses of the artifact leading to an *efficacious product*. For example, Girod (1998) relates the story of his high school science classroom in which students created displays that engaged users in understanding some central elements of life during the Mesozoic Era. Displayed for the public in a gallery called the Mesozoic Resource Center, student designers considered how gallery visitors would perceive, make sense of, and interact with gallery products. This "theory testing" is a second essential element of design-based learning. In our case, our goal was for teachers to prepare *authentic* <u>and</u> *efficacious* videos that produced the desired effect in the teaching and learning setting.

The final quality or characteristic is that the act of design, because of the unique interaction between designer, ideas (content/subject matter),

resources (tools, language, prior knowledge, and existing schemas) and users requires designers to produce a powerfully *expressive product*. Good teachers design learning experiences in ways that express aspects of their personal beliefs, values, and aesthetic sensibilities.

In summary, our goal was for teachers to produce *authentic* and *efficacious* videos that were <u>also</u> richly *expressive* of themselves and their subject matter. Built on the three characteristics of authentic, efficacious, and expressive, design-based learning opportunities are a natural lens for viewing teaching and learning in a teacher education setting. For example, teacher education is founded on the premise of readying for the demands of the profession through authentic activities including writing lesson plans, preparing assessments, and student teaching in general. Further, teachers monitor the efficacy of their actions and efforts at every turn seeking to maximize student learning. Finally, teachers are constantly crafting, building, or modifying materials in ways that demand of their own expressiveness. In other words, good teachers put a bit of themselves into their lessons and materials. Without question the qualities of authentic, efficacious, and expressive describe design activities and the activities of teaching. In this way, teaching is designing.

The goal for this research was to highlight the design elements of teaching (authentic, efficacious, and expressive) and to engage teachers in acts of design around digital video production. Our hypothesis was that the constraints and affordances of design and the media of digital video would encourage teachers to re-think some of their existing beliefs and practices.

We could have engaged our teachers in design activities and the analysis of teaching and learning through design by completing a wide variety of projects ranging from the design of lesson plans, to the design of role-playing activities, to the design of formative assessments. We chose digital video because of several important opportunities and challenges unique to its use.

Opportunities and Challenges Unique to Design and Digital Video Production

Digital video presents some unique opportunities and challenges when compared to traditional classroom technologies and media. One key element is that it relaxes some of the constraints in the classroom such as distance, time, and perspective. Videos can be employed that transport students to other places in their school, their city, their world, or even the solar system. They can go forward and backward in time or even compress or stretch time as needed. They can highlight new and multiple perspectives on situations, including size, angle, and point of view. This ability to manufacture or contrive a representation of reality in ways that are most educational is a unique element of digital video production that can be exploited in powerful ways.

Developing digital video also enables teachers to present moving pictures that specifically relate to the lesson at hand. Speeding up a video, slowing it down, or juxtaposing various elements, can highlight and illustrate elements of curriculum that would be very difficult to do otherwise. For example, one of our science teachers made a short video by stringing together a series of still images taken five minutes apart across an entire day to illustrate the motion of the sun and resultant shadows. His third grade students, he argued, were not patient enough to attend to these changes on their own but with video he could speed changes across time. Another important element of digital video is the use of multiple coordinated media, such as images, videos, and sound. Integrating these elements in creative ways offered teachers the ability to motivate and move students in powerful ways they had not been able to do before.

There are also several significant challenges in the development of digital video. First, it takes a great deal of time. Very simple videos can be produced in relatively little time, but there are countless decisions that must be made once one gets beyond the basics, and these decisions require lots of searching (e.g., for the right music) and fine-tuning (e.g., for the right transitions started at the right time). Furthermore, each change takes a great deal of time to render and produce. In this regard, patience and tenacity are required.

Second, decisions made early in the process of developing a video have implications for the rest of the project. Participants sometimes made seemingly insignificant choices at the beginning in developing a video that limited their choices further in their work. For example, poor prior planning occasionally meant not shooting a particular scene at a particular time thereby missing an opportunity for footage that would prove to be critical in the end. At times, making adjustments required starting over from scratch, again requiring more time.

Third, developing digital video is very different from preparing to teach in a regular classroom because all decisions must be made before anything happens in the classroom experience itself. Teachers generally have great flexibility in the classroom, adjusting their work based on how things are unfolding with students. In contrast, once the video is rendered, it stands essentially unchangeable for use in the classroom. Obviously this constraint requires far more careful advanced planning than the planning needed for a typical lesson in a classroom.

Research Questions

To investigate the effectiveness of using digital video to re-think teaching practices, we asked the following research questions:

1. In what ways do teachers perceive the act of planning, shooting, and editing a digital video to be similar to, and different from, the act of face-to-face teaching?
2. Where similarities exist between the two, what effect might creating digital videos for teaching and learning have on re-thinking teaching practice?
3. If re-thinking of teaching practice does occur, do participants anticipate changing teaching practices in light of this re-thinking? If so, in what ways?

In an effort to address these questions, we engaged teachers in analysis of design-based learning and the design of digital videos in two separate teacher education experiences.

Participants

The sample of participants was 38 practicing K–12 teachers enrolled in two separate Master's degree programs during the summer. Thirteen of the participants were completing the final year of a three-year Master's degree program in education technology and taught overseas for international and Department of Defense schools. These participants were simultaneously enrolled in courses dealing with technology integration across the curriculum and school leadership focused on technology and innovation. Coursework completed during previous summers included topics such as learning and development, research methods, Web design, and other technological skill development. Courses were delivered in an intensive, four-week model meeting for six hours each day in which time was split across discussions of readings, independent research, development of technology products (Web sites, videos, other resources as necessary), and one-on-one work with instructors.

The remaining 25 were enrolled in the second of a three-year Master's degree program in curriculum and instruction and were simultaneously taking a foundations of education course and an advanced curriculum design course at a campus-based university in the Pacific Northwest. Similar to the overseas section, these students completed coursework in learning and development and research methods during the first summer of the program and would complete advanced technology applications

projects during the final summer of their program with an emphasis on leadership in schools and districts. Courses were spread across a less intensive, six-week session totaling four hours of instruction daily.

Though in different settings, participants were taught using the same design-based framework (authentic, efficacious, and expressive) and designed digital videos for use in their own classrooms. Each of the authors collaborated in the design and execution of these summer courses though only the second author taught in both locations.

Wide variation existed in teaching experience for the participants ranging from two to 22 years. Of the 38 students, 22 were female and 35 were Caucasian. None of the participants had significant prior experience designing videos though most were at least moderately skilled in basic computer use.

As a part of these courses, participants were asked to design and develop at least two kinds of videos. First, participants were asked to develop an instructional video that taught an idea or concept necessary for learning a content standard or benchmark that their own students would have to master. In this regard, the video was designed to be an authentic product that participants could use in their own classrooms. For example, one participant wanted his middle school students to see that mathematics was everywhere in the world around them—rom geometry in the shapes of building to describing the motion of falling objects. This goal was embedded in a "real world application of mathematics" benchmark that he was asked to teach. As a result, he designed and developed a short series of videos collectively titled "Stop and See the Math." In these productions he led viewers on a tour around town helping them to see the world through his eyes—his mathematized eyes—helping them to understand that mathematics is not some esoteric construction but, rather, something very practical to understand and use if you can see the mathematics around you. It was a very successful video and the participant was eager to use it in his classroom.

In the second instance, participants were asked to design a video that sought to engage viewers in a moving experience connected to important and powerful ideas in their classroom. For example, a middle school science teacher seeking to illustrate the water cycle designed a wonderful video set to the tune of *Riders on the Storm*, by the Doors. The video opened with a fake urination scene, followed the "water" down the toilet to a water treatment facility, to a river, to the ocean, to clouds, snow, rain, runoff, and finally a well. From here the video cut back to a drinking fountain (supposedly connected to the well), and ended with a second mock urination scene. It illustrated quite clearly the nature of the water cycle in ways that his students were unlikely to forget. As with the Stop and See the Math videos, this video was educative, engaging, and artfully constructed.

Participants typically worked in groups of between two and four and spent between three and six hours in production. Their videos were presented to each other in class as well as, when possible, to other students completing other education courses. We believe an important part of the educational process behind digital video production, likely bearing some of the effectiveness in this research, lies in the act of publicly screening the video products. In this setting, participant designers had the opportunity to discuss with viewers the intention and motivation behind the video, its effectiveness, as well as the subtle details that may have been overlooked by the casual viewer. These screening sessions were filled with rich discussion between viewer and video designer.

It is important to note that in both cases, students had a great deal of technology and support available to them including multiple computers with high-speed processors, digital production software like iMovie, Final Cut, and Adobe Premier, digital video cameras, microphones, booms, and tripods. This equipment was available for use everyday during these courses and students made use of them up to 12 hours each day. It might be considered an immersion approach to learning.

Data Collection and Analysis

At the conclusion of each of these summer experiences, participants were interviewed in three-person focus groups. Interviews were conducted away from distractions and were videotaped to record participants' words and gesticulations. All interviews were audio recorded and transcribed verbatim. Interviews ranged from 45 to 60 minutes and covered these five open-ended questions.

1. Is making a video anything like face-to-face teaching? In what ways are they similar/different? Consider curriculum design, issues of motivation and engagement, the outcomes sought, and other issues as appropriate.
2. Did the process of planning, filming, editing, and showing digital videos help you understand or think differently about teaching and learning? Consider content, design, artistry, and other issues as appropriate.
3. As a result of your experiences planning and producing videos, might you be more sensitive to certain issues in the classroom? Consider motivation and engagement, student differences and other issues. Do you imagine your teaching practices changing as a result of these experiences? If so, in what ways? If not, why not?
4. How is the experience of working with digital video similar to or different from participating in other professional development experiences? Is it more or less effective? Is it more or less thought provoking? More or less useful?
5. Has the experience of working closely with digital video helped you understand or think differently about yourself as a teacher? If so, in what ways? Consider what you value as a teacher, how you see yourself compared to your peers, your core philosophical perspectives and other issues as appropriate.

It might be argued that participants were likely to give flattering or positive responses to questions as they had just completed an intensive course experience with the researchers as their instructors. This is a common criticism of research in teacher education and we took the following precautions to mitigate the impact of this issue: First, participation was completely voluntary and five students chose not to participate in the interviews. Second, interviews were conducted after grades had been shared with participants so as to disconnect grading pressures from the goals of this research. Third, the goal of the research study—to explore the effect of working with digital video technology, not to evaluate participant learning—was clearly explained to the participants. These efforts seemed to be effective as participants appeared to speak freely, both positively and negatively, about their experiences. In addition, appropriate informed consent procedures were used and IRB approval of this project was obtained.

Working independently to increase trustworthiness, two researchers wrote detailed analytic memos after each interview focusing on understanding participants' experiences and outcomes of participation in digital video construction. After transcription, each researcher listened independently to the entire interview audio recording using the transcript to note key phrases, recurrent ideas, and emergent themes. For example, while watching videotaped interviews and following along with the transcript, the researchers would circle key phrases that seemed to illustrate the impact of digital video production. Looking across key phrases, they were grouped in an effort to identify recurrent themes or threads. Finally, the two researchers came together to review the audio data and transcription together and to share their notations regarding recurring ideas and themes. During approximately 40 hours of total analysis, several themes were identified, collapsed, expanded, combined, and re-emerged

following the procedures of the constant-comparative method (Glaser, 1978; Glaser & Strauss, 1967).

Participants were invited to a de-briefing session with the two researchers at which the hypothesized themes were shared with participants using snippets of transcript to exemplify each theme. In the end, five distinct themes were identified. Through this grounded theory process, standard triangulation across themes, and member checking, we believe our interpretations have a fairly high degree of reliability.

Results

Analysis of interviews revealed several important themes or trends in data that are all clustered around re-thinking and re-working instructional practices and instructional design. Each theme is exemplified by supporting data from the interviews though pseudonyms are used to ensure confidentiality. Themes are presented in decreasing order of their prominence or strength as a reflection of the whole participant population.

1. Attending to desired outcomes and student prior knowledge

Important parallels between making digital videos and instructional design were identified by participants. Several reported that working to create digital videos caused them to give more serious attention to the desired outcome of viewing the video. A common challenge for teacher educators is to help teachers and teacher candidates find value in clearly identifying goals and objectives to guide teaching. Through working with digital video, participants described renewed attention to the identification of instructional goals and capturing and maintaining audience attention toward these desired outcomes. A student named Rachel expressed well this emphasis on outcome, "I suppose when I normally teach I have a plan—I know where I want things to go but making a video really forced me to think carefully about what I wanted students to be thinking about and to notice."

Their heightened attention to purpose was understandable as digital videos were shared with others as often as possible. It has been argued that one of the best ways to clarify something for oneself is to explain it to another. Through this same process, the act of producing and showing a video helps clarify main ideas and consider carefully how others will come to understand them. This greater attention to the desired outcomes or 'targets' matches with the educational emphasis on having clear targets for learning (Stiggins, 2004). Emma described unsuccessful pre-screenings of videos in ways that illuminated this 'targets' idea, "It was a bit frustrating to work on a video and then show it to my classmates only for them to stare blankly and say… I don't get it."

Participants also described increased sensitivity to audience prior knowledge and experience as related to the identified targets or desired outcomes. As with clear targets, attending carefully and seriously to student prior knowledge is essential for new learning to occur (Dewey, 1902; Smith, DiSessa, and Rochelle, 1993). One participant articulated his newfound attention to details stating, "Working in digital video has made me a more systematic planner of teaching and learning." Another elaborated, "I now think about instructional design in the same story-board way we learned to do in designing videos." It may be that the act of storyboarding resonated with participants in that it was taught in a way that mirrored the process of backward design (Wiggins & McTighe, 2001) in curriculum organization—a common conceptual idea in teacher education and schools today. Just as teacher candidates are taught to design learning experiences starting with learning targets, participants were taught to organize video production details using a storyboard that began with a statement of "the issue prompting this video" and ended with "the desired resolution or outcome." Working carefully from desired outcome back through to the learning experience, in ways that attended carefully to student prior knowledge and experience, is an essential skill to be acquired in teacher education experiences and our design approach seemed to support this agenda.

2. Instructional design as engaging layers

A unique element of digital video is attention to multiple layers of media. For example, in creating a digital video, one might use several audio and video tracks including background music, narration, video footage, and even picture-in-picture. Participants described the vast amounts of time and energy spent in aligning these layers in a way that multiplied the desired effect. As a result, participants described different thoughts about classroom practice. "I'd never thought about layers in my classroom before. Like a video, there's movement, sound, content—I'm more sensitive to the whole package." The notion of layers as something at work in daily classroom practice was compelling for a number of students as they described thinking very carefully about all "channels" or media in interplay in the classroom. This awareness alone is a positive outcome of this design experience and several students made comments like wishing they could teach to a soundtrack, organize lighting and props differently, and coordinate stunts or special effects. Darren commented, "I've never thought about teaching as a performance. When I'm teaching about forms of government—like a dictatorship—wouldn't it be cool to walk into the classroom to the Darth Vader music from *Star Wars* with dimmed lights and swirling fog. I guess I could make a video that shows this." It was as if participants moved closer to thinking about the notion of a full educational experience and considered more carefully ways to provide such rich experiences.

3. Teaching as performance

Related to continuity between layers and instructional design, several participants reported becoming more attuned to issues of aesthetics and artistry as a by-product of working in video media. One participant stated, "I've become more sensitive to issues of timing, lighting, transitions—these seem more important to me now in my teaching than they were before." It is as if our participants were, perhaps for the first time, considering deep engagement of learners as the desired outcome of teaching. Jenna commented, "You know how a great movie sucks you in and holds you until the credits roll—that's how I want my health class to be. I want my kids on the edge of their seats until the curtain falls." Jenna's interview partner agreed sharing how she had adopted a vision of performance as a result of exploring digital media. "I think about my lessons as an act and about teaching as a performance." Each of these contributes to the "whole experience" perspective on creating learning experiences in classrooms.

Interestingly, another common idea discussed by participants was the relationship between the hard work and commitment of time and energy demanded by high quality video production and teaching a high quality, engaging and energetic lesson. Each of these acts seem to take enormous mental and physical commitment—just as the actor is exhausted at the end of a great performance, so is the teacher, and perhaps so is the video designer.

4. Rethinking the process/product tension

In many learning settings, tensions exist between producing a product (e.g., paper, presentation, digital video) and the growth of the learner as a result of the process. In fact, this tension is so great that writing researchers have developed entire movements that align themselves with these two camps—those who value student written output, in all forms, and those who value student written output in impeccable form (Delpit, 1995). A similar tension in using digital video was described by participants. For example, digital video technology allows quick production of professional looking video products. Despite this, participants reported spending hours fiddling with details to produce the best possible product. As instructors, we explicitly asked that participants not invest too much

time on minor details. However, one stated, "I like the production of products—perfect products." When we suggested that perhaps the design of the video had the desired effect in that it helped our teachers to think through the most important and compelling aspects of their content areas and it was not necessary to do the actual filming and production, the students said, "it would have felt very awkward not to shoot the videos we planned so carefully."

It seemed as though the production of the product was also very important. Design is a series of trade-offs in which designers struggle to balance investment with return. Several participants spoke of the seductive power of video technology to engage designers in fine-tuning of products. Participants reported spending hours finding the right music, making sure transitions were timed perfectly, and that color schemes, lighting effects, and other details were just right. It is as though the editing software allows such flexibility and easily accessible features that the desire for a perfect product was magnified. Participants did not feel that this tension had a strong corollary to their work as classroom teachers—the pragmatics of teaching moved their curriculum development more rapidly along, keeping them from wasting too much time in details. In fact, several participants lamented this fact and wished for more time in their regular teaching schedule to continue tinkering toward a more powerful product, unit, or lesson.

One strategy for balancing the process/product tension is to provide more opportunities for formative feedback rather than only at the conclusion of their design efforts. Though we tried to provide formative evaluations we found participants reluctant to share their products before they were "polished." We remain uncertain how to mitigate these tensions more effectively. Similarly, several participants supported the corollary idea that to seek more systematic feedback in the design of lessons and learning activities would be welcomed in daily practice. It is no secret that teachers rarely have an opportunity to watch one another teach let alone share a common planning time in which they might provide formative feedback on the design of instruction.

5. Design as a sensitizing experience to learners' needs

A surprising theme emerged as students described newfound respect for the process of learning. It seemed that learning to use digital video editing equipment placed these experienced teachers in the uncomfortable role of novice learner. One student, using the language of her other education courses said, "I was forced to operate too far outside my zone of proximal development and I don't want my own students to experience that same kind of discomfort." Though this is related to ideas about student prior knowledge and experiences, it speaks clearly to a newfound desire to treat students with care and compassion as they learn new ideas and skills.

Another participant, commenting on the role of group work said, "We ask students to work in groups all the time without incident but working in groups on a large video product was very challenging. Everybody had different ideas and in the end only one person could 'drive the car.'" It is our expectation that such empathy could lead to changed practice that may then be another positive outcome of working with digital video technology. Participants were obviously forced to interact and participate in ways that reminded them of the group practices that they too had previously employed in their own classrooms. Surprisingly, they found these pedagogies discomforting and even painful, certainly not always as conducive to learning as they had hoped. We believe it was the socially negotiated actions of design that surfaced these tensions.

Will These Changes Endure?

Participants were asked to predict the "staying power" of their new ways of thinking about instructional practices. Five of the 38 students suggested that though they learned new skills and ideas, that these ideas would not likely have a significant impact on their current pedagogical practices, as

Table 1: Scoring Guidelines for Digital Videos and Other Design-Based Products

Criteria	For consideration
Mastery of content (authentic)	Did the video demonstrate clear and comprehensive understanding of core ideas? Did the video represent this content mastery in an accessible way?
Evidence of new/ different thinking/acting (efficacious)	Is there evidence that designers think or act differently about content as a result of the construction of the video? Is there evidence that users/viewers of the video also come to think/act differently as a result of the video?
Attention to usability (efficacious)	Is the video constructed carefully and accurately? Is there evidence that the video was "pilot-tested" and refined based on these results? Was the user perspective considered in design?
Artistry/aesthetics (expressive)	Is the form of the video artfully rendered? Does the form contribute to the videos effectiveness?

they would likely continue to be overwhelmed with the pragmatics of daily classroom practice. Most participants, however, believed they were irrevocably changed in their thoughts and practices—hoping to adjust their teaching practices in ways better aligned with their newfound ideas and values. Clearly follow-up studies are necessary to explore these speculations.

Cautions in the Use of Digital Video in Teacher Education

A small number of cautions were repeatedly noted by participants and deserve recognition here. Many students reported the process of planning, shooting, and editing digital videos was too time consuming to be used in any large-scale way in their practice. Related to the pragmatics of teaching and the pace at which most teachers work, participants appreciated the opportunity to explore digital video design in this summer experience but several only laughed when asked if they would continue to design videos during the regular school year.

Another concern expressed was the lack of interactivity in digital video use. In our culture as well as in the experiences of these classes, video is generally employed as a broadcast medium rather than an interactive medium. There certainly are technical and pedagogical strategies for using digital video in a more interactive format, but these strategies were not highlighted in the course experiences. A conversation around the interactivity employed in case-based teacher education ensued and possibilities for borrowing from these ideas occurred. For example, a student named Sheree wondered about building a discussion script to accompany her video. At key places in the video, the action would pause and a discussion question would be posed to viewers heightening the instructional power and adding a bit of interactivity.

Though cost of equipment and software for use in digital video production has decreased drastically in recent years, participants still felt that these "start up" costs were too great to expect developing digital video to be a common practice in today's classrooms.

A final participant concern existed around the fair and accurate evaluation of digital video products specifically and design-based products in general. This is a tension that was at play in the course experience itself and participants mirrored the tension as they considered similar pedagogy

in their own classrooms. In recognition of this, Table 1 provides some guidelines that emerged useful in evaluating digital videos and design-based products.

Discussion

Teacher education is currently under enormous pressure to prepare teachers who think and act in accordance with 21st century visions of teaching and learning. These visions are often in stark contrast to the pedagogy of the past in which teachers taught with little or no systematic connection to student learning. In an effort to help teachers overcome their own "apprenticeship of observation" (Lortie, 1975) or to craft new ways of thinking about old or traditional educational challenges, teacher educators may find it valuable to turn to design based learning and digital video production or other pedagogies that highlight authenticity, efficaciousness, and expressiveness as key qualities or characteristics of the work of teachers.

It seems that using digital video technology and the production of digital video resources may be a powerful professional development experience for in-service teachers. Our research suggests many of the skills necessary to produce and deliver high quality classroom experiences were highlighted in the production of digital video resources for classroom use. The new experience and the new constraints and affordances of working with digital video as an educational resource provided rich opportunities for teachers to see with new eyes some of the challenges that had been escaping their attention in the classroom. Focusing attention on the issues of audience, outcome, and product in the planning, filming, and editing of digital video increased their sensitivity to important issues including the role of group process, continuity of details, and the role of formative evaluation.

As the standards-based movement and pressures for accountability continue, it may be that teacher educators need to employ methods that are significantly different from methods used in the past. It is true that we must prepare new teachers for success in the 21st century, but perhaps we should simultaneously be helping them to see a path toward a new future where learning is centered on seeing the world differently, through lenses of important and powerful ideas. The production of digital video seems to engage teachers in analysis of what really matters in teaching and learning and challenges them to design tools (powerful videos) that motivate, inspire, and transform students. This seems like a good thing to us.

Our research is in need of replication, extension, and validation but suggests a fruitful path for future teacher professional development experiences. We encourage others interested in teacher professional development, technology use in teacher education, and those interested in teaching in a new way to consider using design based pedagogy and digital video production.

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A Message from ISTE'S Publications Committee

Dear SIGTE Members,

I would like to update you on some upcoming changes in membership and publications that ISTE is undertaking. ISTE's goal is to strengthen the periodicals program and enhance the national and international recognition and standing of the two journals: the *Journal of Computing in Teacher Education* (*JCTE*) and the *Journal of Research on Technology in Education* (*JRTE*).

In 2004, the ISTE Board directed ISTE staff to make the journals self-sustaining, and for *Learning & Leading with Technology* (*L&L*) to become the official ISTE member periodical. This project has been ongoing, with the first phases focused on the following:

1. Broadening *L&L*'s scope to be more inclusive of the interests of ISTE's full membership,
2. Undertaking the necessary research to make appropriate pricing and promotion recommendations, and
3. Initiating plans to more widely distribute *JCTE* and *JRTE*.

Some of you were able to attend the SIGTE business meeting at NECC in June and participate in the discussion about *JCTE* and online access. SIGTE leadership brought your recommendations and motion to the Publications Committee, and they were fully considered. A final recommendation was made to ISTE staff, who are responsible for pricing determinations. ISTE staff reviewed the possible ramifications of making online access available at no additional charge for members, and it became clear that doing so would seriously jeopardize ISTE's ability to continue to offer the journals at these low member prices, and ultimately in print form if too many members opted for online-only access. Though printing and shipping costs continue to increase and represent a sizable portion of the journal budgets, one of the largest budget line items is editorial costs, which are stable regardless of delivery method. For these reasons, it is necessary for us to provide online access only to print subscribers.

ISTE is now ready to begin the implementation phase to make the journals self-sustaining. Beginning in October 2007 (with the winter issues of *JCTE* and *JRTE*), both journals will move to a subscription model, with *L&L* automatically included with ISTE membership. *JCTE* will be available to all ISTE members (including SIGTE members) for $32 per year and *JRTE* will be available for $54 per year. Costs vary for non-U.S. members to account for shipping. These prices represent a 70% savings over non-member pricing.

Also beginning in October 2007, membership in all Special Interest Groups (SIGs) will be free to all ISTE members. A number of SIGTE members have been paying $20 each for additional SIGs to support their individual research agendas. That money can now be channeled to offset their subscription to *JCTE*.

ISTE's guiding concern is providing support to the journals and an easy transition for current ISTE members who now receive *JCTE* or *JRTE*. ISTE is offering a generous "grandfathering" plan to help ease this transition. Beginning on October 1, 2007, any ISTE member who currently receives one of the journals will continue to receive it at no extra charge for at least one full year. In October of 2008, members who receive ISTE journals will be prompted to subscribe upon membership renewal. For some, this will mean receiving four free journal issues, for others, as many as seven journal issues, depending on their renewal date. At the same time, beginning in November of 2007, all ISTE members will begin receiving *L&L* as part of ISTE membership, providing a communication tool that will reach all members.

A suggestion that emerged from ISTE's survey of higher education members is the need for a comprehensive membership category that addresses their particular needs. In response, ISTE has plans to introduce a higher education/education leadership membership category in October of 2008. This category will include both print journals and some additional benefits appropriate for this segment of educators.

Thank you for your important participation as a member of SIGTE. We need your help to make this self-sustaining funding model successful. When it is time for you to renew your ISTE membership, consider all of the professional benefits that ISTE membership includes. Please subscribe to *JCTE* and encourage your colleagues to subscribe to *JCTE*. Our SIGTE journal is highly respected in the education community. Thanks to our wonderful and dedicated editors, Ann Thompson and Denise Schmidt, *JCTE* has been a point of pride for a number of years. Your continuing support will allow that tradition to continue and will strengthen SIGTE. If you have questions about these changes or your individual membership details, please contact ISTE Member Services at 1.800.336.5191 or iste@iste.org.

Sincerely,

Helen Padgett, PhD

ISTE Board Member,

Chair of Membership and Publications Committees

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