Guerrilla Video

A New Protocol for Producing Classroom Video

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Contemporary changes in pedagogy point to the need for a higher level of video production value in most classroom video, replacing the default video protocol of an unattended camera in the back of the classroom. The rich and complex environment of today's classroom can be captured more fully using the higher level, but still easily manageable, "guerrilla video" protocol of an actively operated video camera and a wireless microphone on the teacher. With the increasingly sophisticated use of video analysis tools in teacher education and the increasingly high stakes of video-based teacher assessment, both preservice and inservice teachers benefit from a higher-level classroom video protocol.

Introduction

Video has been an important tool in the preparation and professional development of classroom teachers since at least the late 1960s (Fuller & Manning, 1973). However, while the technology of video recording has progressed steadily from 1-inch reel-to-reel to 3/4-inch U-matic to VHS to 8mm to mini-DV to DVD and hard-drive formats, the basic classroom video production protocol has remained the same: a single, unattended video camera placed on a tripod at the back of the classroom and aimed at the teacher in the front of the room—what we call "surveillance" level video production value.

In this article, we look at this default video production protocol and ask whether it is adequate and appropriate for the uses of video in teacher preparation, development, and assessment that are elaborated elsewhere in this special issue. It is not our intent to provide a video production primer but rather to increase appreciation of the impact that video production considerations have on the interpretation of classroom events.

As depicted in ***Table 1,*** we consider two levels of classroom video production value. Low-level (i.e., surveillance) video production value involves an unattended camera at the back of the classroom. An actively operated single camera or multiple stationary cameras, along with the use of an auxiliary microphone to record teacher audio, characterize a higher-level production value that we call "guerrilla" video. Guerrilla video has some characteristics of commercially produced videos depicting model teaching methods but can be routinely produced by teachers and teacher educators. We contend that guerrilla video production value is appropriate for most video that is recorded in authentic classrooms and used for feedback, analysis, assessment, or showcase purposes by preservice and inservice teachers. The table matches the appropriate production level with various uses of classroom video. These uses can be considered as being *low stakes* or *high stakes,* depending on who is viewing the video and for what purpose.

Table 1. Matching classroom video production value and video use.

	Low-Stakes Use	**High-Stakes Use**
Guerrilla Production Value	• Case video for Analysis or Modeling; • Showcase video (e-portfolio)	• Case video for Formal Assessment; • Showcase video (National Board Certification)
Surveillance Production Value	• Self-video for Feedback	• Inappropriate

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Types of Classroom Video

Classroom video can be segmented in terms of how it is recorded and by how it is used. Types of classroom video include: (a) case video used to analyze authentic classroom teaching, (b) self-video used for feedback by preservice and inservice teachers, (c) showcase video for demonstrating a teacher's best teaching, and (d) assessment video used for evaluation purposes.

Case Video

Educational researchers conducting case study research in authentic classrooms rely on video to adequately represent the classroom environment and events. We adopt the same standard with video that is shot for teaching rather than research purposes—what we call case *video*. Case video is shot at a guerrilla video production level. Case video that is used for analysis of classroom teaching is sometimes called *trigger* video and depicts typical (as opposed to model) classroom teaching by either experienced or novice teachers. Case video that is edited to depict best practices can then be used as model video to demonstrate teaching methods, providing teacher educators with an inexpensive but highly realistic alternative to commercially produced model demonstration videos.

Analysis of trigger video can take many forms, with an especially interesting approach being the repurposing of video *coding* methods associated with qualitative research into learning activities for preservice teachers (Rich & Hannafin, 2008; van Es & Sherin, 2002). Although teacher educators developed interactive videodiscs for video-based teacher analysis activities some years ago (Pape & McIntyre, 1992), the approach has become much more feasible as teacher educators and researchers have developed video analysis software specifically for coding classroom video (Rich & Hannafin, 2009).

Self-Video

Self-video—that is, video recording in a preservice and inservice teacher's classroom for feedback purposes—has long been an important aspect of teacher education, especially in the context of microteaching, and of professional development. Feedback using self-video can be as simple as the teacher personally reviewing a video recording of his or her classroom teaching session. Video-based feedback can be enhanced through activities such as editing video clips of critical incidents (Calandra, Brantley-Dias, Fox, & Lee, 2007) or editing and uploading video clips to an electronic portfolio to illustrate a written reflection (Fadde, Aud, & Gilbert, in press). Self-video can also be used with video analysis software to have preservice teachers code their own teaching behaviors. Such analysis of self-video is often done in support of preservice teachers writing reflections, with specific *lenses,* such as student-centered teaching, sometimes applied to the video analysis.

Self-recording is also conducted by inservice teachers in order to improve their own teaching. Video-based professional development of this type can be substantially enhanced through the involvement of teachers in video clubs in which fellow teachers view episodes of authentic classroom teaching as a focal point of more elaborated discussion (Sherin & Han, 2004).

Showcase and Assessment Video

Self-video is sometimes used to showcase a preservice or inservice teacher's teaching practice. For instance, preservice teachers may edit and upload *highlight* video clips of their classroom teaching to an electronic portfolio. Although it is a low-stakes use, the video production level of showcase video clips should be adequate for viewers to accurately perceive classroom events.

The stakes involved in showcase video rise as inservice teachers who apply for professional recognition, such as National Board Certification or the National Science Foundation's Presidential Award for Excellence in Mathematics and Science Teaching, are required to submit video evidence of their teaching practice (Ittelson & Lorenzo, 2008). The stakes get even higher as formal assessment of teacher performance is expected to increasingly involve formal video evidence (Hannafin & Recesso, 2009). As stakes rise, so does the need for video production value that allows richer representation of the classroom environment than is afforded by surveillance quality video.

A central issue related to all of these uses of video for teacher education and professional development is when surveillance-level video production value is adequate, and when a higher level (guerrilla) of video production value is called for. Some teachers or teacher educators might maintain that they are only "documenting" the classroom and are not producing a video. But just as one "cannot *not* communicate" (Watzlawick, Beavin-Bavelas, & Jackson, 1967) [emphasis added], so one cannot *not* produce a video. Any video recording is an artifact, a production. Every video production decision, and every non-decision, affects what viewers will perceive as the classroom experience.

Video Production Value and Classroom Video

The basic elements of video production value in classroom video recording are: placement of camera(s), operation of camera(s), and use of external microphone(s). Surveillance-level production value for classroom video consists of a stationary camera placed at

the back of the classroom, with audio recorded by the on-camera microphone. Guerrilla-level video can involve active video recording with a single camera, or passive video recording with multiple stationary cameras. We describe each level of classroom video production level below.

Surveillance-Level Classroom Video

As suggested in ***Table 1***, surveillance level video production value may be adequate for some kinds of self-video that is intended strictly for feedback. Especially when viewed by an experienced teacher, surveillance-level video can provide *video-cued recall* of classroom events. It doesn't matter that a classroom episode is not fully represented on video because the teacher can recall and visualize the episode. In a video club context, for example, the teacher who is shown in the video will typically describe the classroom context of a selected incident to peer teachers in order to generate discussion of teaching methods (van Es, 2009).

Novice and preservice teachers, however, may not be able to reliably recall or visualize the full classroom environment because their cognitive capacity is largely taken up by delivering the lesson (Feldon, 2007). It is no wonder, then, that preservice teachers remain overly focused on their own teaching behavior, even when given explicit instructions to watch the video for student rather than teacher behaviors (Calandra, Gurvitch, & Lund, 2008). The ability to *notice* student behaviors is a particular skill that needs to be developed in preservice teachers (van Es & Sherin, 2002). Clearly, preservice teachers' ability to notice their students' learning behaviors is supported by video framing that shows their students. Indeed, how can teachers expect to focus on students if the camera is focused principally on the teacher? Our recommendation, then, is that surveillance-level production value can be adequate when an experienced teacher is able to recall and visualize the classroom environment based on the view available through the limited "keyhole" (van Es & Sherin, 2002) provided by a stationary video camera. Higher production value, however, is more appropriate for preservice teachers who are just learning how to notice student learning behavior and for any other use of classroom video where the viewer was not present in the live classroom and therefore is dependent on the video to perceive the multifaceted events and environment of the classroom.

Guerrilla Video Production: Single Camera with Operator

In 1994–1995, a comparison of mathematics classrooms conducted for the Third International Mathematics and Science Study (TIMSS) involved videotaping 231 eighth-grade math lessons from schools in Germany, Japan, and the United States. An excerpt from a section of the TIMSS report called "Basic Principles for Documenting Classroom Lessons" notes:

> The videographer should follow the teacher with the camera to get a sense for what the students are doing. For those instances in which the teacher does not circulate through the class and stays at the board or at his or her desk, the camera should alternate between the teacher and the ideal student. Once focused back on the teacher, the videographer remains there until the students' activity changes in a significant way (e.g., new materials are introduced or they break into group time and the panning back and forth occurs again). (Stigler *et al.*, in Ittelson & Lorenzo, 2008, p. 5)

Similarly, the National Board of Professional Teaching Standards (NBPTS) requests that applications provide a video "with as authentic and complete a view of the candidate's teaching as possible" (Ittelson & Lorenzo, 2008, p. 3). NBPTS guidelines for classroom video recording go on to suggest that a video should show the faces of teacher and students. The video production implications of showing the faces of both teacher and students is that the camera is better positioned at the side of the classroom than at the back of the classroom, and that the camera should be panned and zoomed as needed to capture both teacher and student activity.

The NBPTS and TIMMS guidelines represent *guerrilla* video production value that is not "fancy" but rather is intended to adequately represent classroom events and environment. Any individual with adequate camera skills can operate the camera, panning and zooming in moderation in order to follow the "action" of the classroom. As depicted in ***Figure 1*** and ***Figure 2***, an active camera operator can use a combination of long shots, medium shots, and close ups to more completely and compellingly capture classroom interactions.

Audio Aspects of Classroom Video

Audio is another key aspect of video production value, and even surveillance-level video recorded can be improved substantially through the placement of a lavaliere (tie clasp) microphone on the teacher. A wireless microphone, positioned chest-level, will allow the camcorder to capture both lecture-based and individual conversations. While a wireless microphone increases the chances of clearly understanding everything that the teacher says, it may miss important audio generated by students asking questions or interacting with each other. A professional video production approach would involve placing multiple microphones in the classroom and using a mic mixer to switch smoothly between microphones. By contrast, a camera operator using a guerrilla video approach can "switch" to recording full-room audio during a highly interactive

Figure 1. Medium Shot of classroom activity.

Figure 2. Close Up of classroom activity.

exchange by simply unplugging the external microphone input on the camcorder so that audio is recorded by the camcorder's built-in microphone. Pulling the external microphone plug will generate a loud noise on the video recording. However, if the video will be edited later, then the noise can be removed.

Guerrilla Video Production: Stationary Cameras

Circumstances sometimes dictate that an unattended camera be used. If a single camera is used, and the analytical lens to be applied includes noticing student behavior, then we recommend placing the stationary camera to the side of the room and as high as possible in order to capture the teacher and as much of the class as possible. This camera position also allows any students for whom parental permission has not been received to be seated in an area of the classroom that is not recorded by the camera. Such a single camera, wide-lens video recording is strengthened substantially by using a wireless microphone, as the camera will likely be quite far from the teacher.

For a higher-level of production value with unattended classroom video recording, qualitative researchers have adopted video technology that also makes it feasible to record the feeds of multiple stationary cameras (e.g., BoinxTV), thereby minimizing the imposition of a video operator in the classroom while providing the viewer with a choice of camera angles to capture a rich representation of the classroom environment. One camera can be placed at the back of the room and aimed at the teacher, much as the default classroom video protocol. A second stationary camera can be aimed "over-the-shoulder" of the teacher to show the students. The teacher can then visit the video, switching between chosen cameras that best represent classroom interactions.

Conclusion

Essentially, any use of classroom video in which the viewers of the video were *not* present in the classroom requires a higher level of production value to fairly and fully represent classroom events. Increasing video production value does not necessarily entail multiple cameras, multiple microphones, and video lights but rather involves adopting a guerrilla video approach with an actively operated camera and wireless microphone serving as the "default" classroom video protocol. Preservice teachers who become comfortable with video analysis, of other teachers and of themselves, and inservice teachers who routinely use video for self-improvement, should enjoy a substantial advantage as the uses and the stakes of classroom video grow. □

References

Calandra, B., Brantley-Dias, L., Fox, D. L., & Lee, J. K. (2007, April). *Examining preservice teachers' reflective practice using digital video and critical incident analysis.* Paper presented at the Annual Conference of the American Educational Research Association, Chicago.

Calandra, B., Gurvitch, R., & Lund, J. (2008). An exploratory study of digital video editing as a tool for teacher preparation. *Journal of Technology and Teacher Education, 16*(2), 137–153.

Fadde, P. J., Aud, S., & Gilbert, S. (in press). Incorporating a video editing activity in a reflective teaching course for preservice teachers. *Action in Teacher Education.*

Feldon, D. F. (2007). Cognitive load and classroom teaching: The double-edged sword of automaticity. *Educational*

Psychologist, 42(3), 123–137.

Fuller, F. F., & Manning, B. A. (1973). Self-confrontation reviewed: A conceptualization for video playback in teacher education. *Review of Educational Research, 43*(4), 469–528.

Hannafin, M., & Recesso, A. (2009, April). *Video analysis in classroom teaching practices: Lessons learned, problems, and issues.* Paper presented at the Annual Meeting of the American Educational Research Association, San Diego.

Ittelson, J., & Lorenzo, G. (2008). A basic guide and support for video recording teachers in the classroom; *http://myteachingvideo.com/VideoProject.pdf* .

Pape, S., & McIntyre, D. J. (1992). Utilizing video protocols to enhance teacher reflective thinking. Paper presented at the Annual Conference of the Association of Teacher Educators, Orlando (ERIC: ED344858).

Rich, P., & Hannafin, M. (2008). Capturing and assessing evidence of student teacher inquiry: A case study. *Teaching and Teacher Education, 24*(6), 1426–1440.

Rich, P., & Hannafin, M. J. (2009). Video annotation tools: Technologies for assessing and improving preservice teachers' instructional decision-making. *Journal of Teacher Education, 60*(1), 52–67.

Sherin, M. G., & Han, S. Y. (2004). Teacher learning in the context of a video club. *Teaching and Teacher Education, 20,* 163–183.

van Es, E. A., & Sherin, M. G. (2002). Learning to notice: scaffolding new teachers' interpretations of classroom interactions. *Journal of Technology and Teacher Education, 10*(4), 571–596.

van Es, E.A. (2009). Participants' roles in the context of a video club. *Journal of the Learning Sciences, 18*(1), 100–137.

Watzlawick, P., Beavin-Bavelas, J., & Jackson, D. (1967). Some tentative axioms of communication. In *Pragmatics of human communication: A study of interactional patterns, pathologies, and paradoxes.* New York: Norton.

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A Framework for Facilitating Productive Discussions in Video Clubs

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Video has become a popular tool for professional development. Yet, little is known about how to design video-based learning environments that are productive for teacher learning. The author has used video for teacher learning in the context of a video club. In video clubs, teachers meet together on a regular basis to view and discuss video segments that come from their own classrooms. Such environments raise important design issues particularly related to facilitation, including how to select a clip that will afford worthwhile discussions, how to establish norms for viewing and discussing video from one's own and colleagues' classrooms, and how to focus the discussions on important dimensions of teaching and learning. In this article, the author offers a framework for facilitating video clubs, specifically highlighting the role of the facilitators in the meetings themselves.

Learning to Notice Through Video Analysis

In my research, I consider ways that video may be used to help teachers *learn* to *notice*. Noticing involves identifying noteworthy events in classroom interactions, using one's knowledge of the students, content,

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