Technical Considerations and Issues in Recording and Producing Classroom Video

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Abstract

Classroom video is recorded for many reasons, including self-improvement and high-stakes assessment. For self-improvement a *documentation* video approach using a stationary camera in the back of the classroom may be adequate. However, formal assessment calls for a more advanced *demonstration* video approach. Teachers who understand basic video production and adopt a video producer mindset can increase the quality of classroom videos while still using consumer-level video equipment. This chapter helps teachers capture the richness of their classrooms on video and also helps teacher educators and school administrators decide what video technology and training to provide to teachers.

Keywords: Video, teacher education, video assessment, classroom video

Introduction

Classroom video is recorded and produced[1] for a variety of purposes including: Self-improvement by individual teachers, observation and feedback by teacher educators or school administrators, assessment by external raters for licensure or tenure, application for professional recognition and awards, case studies for teacher education, peer feedback in professional development, and showcasing in teacher portfolios or on school websites. Some of these are neutral or low stakes uses but, increasingly, some are very high stakes uses of classroom video (Hannafin, Shepherd, & Polly, 2010) and they call for different video recording and production approaches.

When we see classroom video on television and websites such as *Teaching Channel*, it appears to be natural rather than highly crafted video production. Meanwhile, teachers typically record classroom video using a stationary camcorder mounted on a tripod placed at the back of the room and aimed at the teacher—an approach that is minimally intrusive but produces poor video quality. It is a conundrum that classroom videos that appear natural and un-produced are actually sophisticated video productions while classroom videos that are recorded "naturally" with little consideration of technical issues are unlikely to result in a natural or rich representation of the classroom environment. The video production conundrum is revealed in a guide for student teachers who must submit classroom videos as part of the Teacher Performance Assessment (edTPA) program that, in many states, is used for teacher licensure and accreditation of teacher education programs (edTPA, 2013b). The guide appears to recommend minimal video production quality while also setting expectations that require higher video production quality:

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[1] We use the terms "recorded" and "shot" to refer to the actual collection of video footage. The term "produced" refers to processes such as editing that are used to turn video footage in a video program.

> **What are the features of a quality edTPA video?**
> There is no requirement or expectation for you to create a professional-quality production. The use of titles, opening and closing credits, a musical soundtrack, or special effects is best left to Hollywood as scorers will be examining only what the video shows you and your students doing within the learning segment. However, while it is not necessary to be technically perfect, it is important that **the quality of the video (clarity of picture and sound) be sufficient for scorers to understand what happened in your classroom** [emphasis in original]**.** (edTPA, 2013a, p. 10)

What teachers, school administrators, and teacher educators need to appreciate is that "quality of video sufficient to understand what happened in your classroom" represents a fairly high level of video production. While low-quality video may be adequate for low-stakes uses, high-stakes uses of classroom video call for higher production quality. In this chapter, we focus on technical considerations and issues involved in recording and producing classroom videos that align with these expectations. We introduce a classroom video production framework that helps teachers decide what approach to take when recording classroom video. The chapter also provides guidance to teacher educators and school administrators who make choices such as what kinds of video cameras to purchase and whether to adopt a bring-your-own-device (BYOD) or enterprise approach to support classroom video initiatives. We then deconstruct two classroom videos in order to reveal professional video production techniques that teachers can adapt to better capture classroom activities. The chapter concludes with discussion of the policies and protocols that teacher educators and school administrators can put in place to guide and support teachers in effectively recording and producing classroom videos.

Classroom Video Framework

The single most important consideration in choosing a production approach is the purpose for which a classroom video is being recorded. Will the video be viewed by teachers on their own, with colleagues, or with a mentor to *improve* their teaching? Or will the video be viewed by evaluators to whom

teachers must *prove* their teaching competence? The dimension of *improve vs. prove* maps to classroom videos being produced for *documentation* or *demonstration* purposes (see Table 1). Documentation videos are used to remind teachers of recent teaching events that they have participated in to cue reflection. Demonstration videos are intended to capture teaching events for viewing by others who did not participate in or observe the original classroom, including teacher education faculty, peer teachers, prospective employers, and external assessment agencies. As shown in Table 1, documentation videos can be appropriately shot with what amounts to a security camera set up; a single stationary camera placed as inconspicuously as possible. Demonstration videos, however, call for a higher level of video production, often including a camera operator and a wireless microphone on the teacher. In addition, teachers who understand video production techniques as they apply to classroom video shooting can more fully capture classroom activities using consumer video technology (Fadde & Rich, 2010).

Table 1

Matching Classroom Video Production Value and Video Use

	Low-Stakes Use	**High-Stakes Use**
Documentation Video (ENG)	• Self-improvement	• Internal Assessment
Demonstration Video (EFP)	• Case Video for Analysis • Portfolio Video	• External Assessment • Professional Recognition

The differentiation between documentation and demonstration purposes for classroom video is further illuminated by associating them with the professional video terminology for two different approaches to remote (i.e., non-studio) video production: electronic news gathering (ENG) and electronic field

production (EFP). While lacking precise or universal definitions, the terms ENG and EFP have been used for decades and provide a useful framework for describing remote video recording and production approaches (Medoff, Fink, & Tanquary, 2001).

ENG, which we are associating with video for documentation purposes, emphasizes quick turn around time, minimal intrusion upon the event, and acceptance of relatively low video production quality. It describes the type of video coverage used in television news reporting. EFP, which we are associating with video for demonstration purposes, is more intrusive on events during recording and collects footage assuming that it will be edited later. As such, EFP takes considerably more time and effort but can produce higher quality videos. Placing classroom video recording on an ENG-EFP continuum provides a framework that informs a plethora of teacher-level and administrator-level decisions, including purchase of video cameras and accessories as well as training teachers on classroom video production techniques. EFP also suggests a mindset that embraces producing rather than simply recording classroom videos.

Table 2

ENG vs. EFP Approaches to Remote Video Production

Video Issue	***ENG***	***EFP***
Camera Type	Shoot-and-Share (e.g., Flip) or mobile device	Camcorder with adjustable view screen
Camera Operation	Self-shot; stationary tripod	Active Operator; hand held camera
Audio	Camera microphone	Lavaliere (tie-clasp) microphone
Control	Unobtrusive	Direct classroom activities for best video
Editing	None	Edit after recording
Planning	Placement of camera; adequate recording media and batteries	Acquire and test camera and microphone; plan for what and how to shoot
Priority	Classroom Event	Classroom Video

Selecting Video Cameras for Classroom Recording

The ease of use and low purchase price of shoot-and-share (e.g., Flip) video cameras makes them attractive, and they can be adequate or even optimal for ENG-style shooting intended to provide documentation of classroom events. However, when classroom video is used for demonstration purposes, EFP-style shooting (such as active camera operator and wireless microphone) then more expensive and full-featured video camcorders are called for. Table 3 compares these two basic types of video cameras.

Table 3

Camera Type Comparison

Type	***Cost***	***Advantages***	***Disadvantages***
Shoot-and-share (Flip)	Approx. $120	Easy to shoot; download to computer and upload to web; small and unobtrusive	No adjustable view screen; often no AC power; limited zoom; poor microphone
Camcorder	Approx. $300	Adjustable view screen; adequate mic; aux. mic input (some); AC powered	Complex menus; more conspicuous in classroom

Shoot-and-share cameras are adequate, even optimal, for ENG shooting of classroom video to help teachers recall and reflect upon teaching events. They are unobtrusive and make it easy to shoot and to transfer footage from the camera to a computer. Indeed, shoot-and-share cameras proved to be a tipping-point technology with simplicity that brought many more teachers to using video in their classrooms (Grayson, 2010).

Various shoot-and-share models have features that address some, but not all, of the limitations. Some models include an auxiliary microphone input. Some have an AC power adapter. Some use easily replaceable AA batteries rather than

difficult-to-find proprietary batteries. However, limitations of shoot-and-share cameras begin to outweigh the benefits as video production tasks move along the continuum from ENG toward EFP. For example, the zooming capability of shoot-and-share video cameras is often limited or non-existent, cameras lack image stabilization, and in-camera microphones are often low quality. Even for classroom documentation purposes, many shoot-and-share models are susceptible to running out of power since they cannot be plugged into an AC outlet but instead, must be connected to a computer's USB port to charge their battery.

BYOD: Video Cameras in Mobile Devices

Video cameras integrated in smart phones and tablet computers also offer options for shooting ENG videos for documentation purposes. Indeed, the integrated video cameras and microphones in many mobile devices are of remarkably high technical quality – so much so that they may make shoot-and-share video cameras obsolete (Dwyer, 2011). However, we still associate mobile device cameras with ENG-style production because they are not optimized for video production with the full array of features needed to support EFP, such as a flip-out view screen that facilitates handheld shooting. In addition, putting a smart phone or tablet computer on a tripod—an essential aspect of even documentation-level video recording—often requires a specialized accessory.

As a policy decision, the issue with smart phones and tablets is whether a teacher education program or school district is going to adopt a BYOD approach or an "enterprise" approach. BYOD is appealing to administrators because it has minimal initial cost. It is also appealing to some teachers because of the convenience and comfort of using their own mobile devices. However, BYOD has disadvantages for teachers who do not have a video-capable mobile device, who use pay-as-you-go data plans that do not support video uploading, or who are not experienced and comfortable with using their device for video recording.

If a teacher education program or school district limits use of classroom videos to self-improvement by teachers then a BYOD policy may be appropriate, perhaps supplemented by providing shoot-and-share video cameras for teachers who lack the appropriate technology or skills to confidently use mobile devices. However, if a teacher education program or school intends to use classroom videos for systematic assessment of teacher performance, then the emphasis shifts from convenience and cost saving to consistency. To be certain that they are rating and comparing teachers on their classroom performance and not their facility with devices, teacher educators and school administrators should consider enterprise approaches. Although more costly than BYOD, enterprise approaches have benefits that can be summarized in one word: *consistency*.

BYOD vs. enterprise policy decisions. As more school systems provide every teacher with a school-issued tablet or other mobile computing device, they may be able to achieve an enterprise approach to classroom video if the devices have integrated video cameras and microphones. An enterprise approach would also include providing an accessory to mount the school-provided tablet on a tripod, additional media (e.g., SD card) dedicated to classroom video recording, and training programs and materials that are facilitated by all of the teachers using the same school-issued device.

When external agencies or organizations assess teachers then the technical quality of classroom videos becomes a more important consideration. External agencies tend to value consistency over quality, and therefore promote documentation-style classroom videos (e.g., edTPA, 2013b). On the other hand, teacher education programs and school systems as well as individual teachers have vested interests in teachers being represented for observation in a favorable light, which argues for producing demonstration-quality classroom videos. Teachers and administrators are challenged to maximize the video representation

of their teaching performance while working within the particular video production rules of various assessing agencies.

Production Rules for Classroom Video

Whether for purposes of research (e.g., TIMSS), recognition (e.g., National Board Certification), or licensure (e.g., edTPA), assessment of teachers' classroom performance is often accompanied by specific video production rules. We describe the rules of various agencies as a way to discuss the implications of various elements of classroom video production, which are in effect even when video is not being recorded specifically for submission to a specific agency. Being aware of these classroom video elements helps teachers move beyond documentation-quality videos to demonstration-quality videos.

edTPA rules. Although the video production rules vary slightly with different subject areas, most student teachers submitting videos for edTPA assessment are allowed to submit two video segments from the same teaching event with total a running time of no more than 15 minutes (edTPA, 2013c). The two-segment video production rule allows teachers to use different video approaches that are more appropriate for recording different types of classroom activities. For example, a teacher may record a direct instruction segment with the camera stationary and then take the camera off the tripod for hand-held recording of a small group activity.

TIMSS rules. The Trends in International Mathematics and Science Study (TIMSS) has recorded classroom videos since the mid-1990s and several have been made available on the TIMSS website for use by researchers and teacher educators (TIMSS, 2013). TIMSS videos specify using a single camera with the camera operator guided by two principles: 1) Document the perspective of an ideal student, and 2) Document the teacher (Ittelson & Lorenzo, 2008). TIMSS videos also feature high-quality recording of the teacher's audio using a wireless lavaliere (aka clip-on, tie-clasp, or lapel) microphone. A camera operator can

zoom the camera to focus on students during small group work activities. However, since audio is tied to the instructor's wireless microphone, the voices of students can be difficult to hear even when the video operator zooms in.

TIMSS videos provide something of a benchmark for classroom video recordings. Although they have occasionally been repurposed as case video in teacher education and professional development, (Zhang, Lundeberg, Koehler, & Eberhardt, 2011) the original research purpse of TIMSS videos was to compare teaching practices in math and science classrooms across decades and continents. Therefore, TIMSS emphasizes both quality and consistency of classroom video. Specifying an active camera operator in the TIMSS classroom video protocol certainly improves coverage of the classroom but arguably introduces a source of inconsistency in what the operator chooses to focus on. In addition, the "follow the teacher" camera rule that facilitates consistency in camera operators' choices also limits the camera operators' ability to cover student work groups by aiming the camera away from the teacher. Following the teacher tends, then, to enforce a teacher-centric view of the classroom.

National Board certification video rules. Lower-stakes assessment contexts, such as submission of classroom videos to a contest such as PBS Innovator Awards (PBS, 2012) or recognition by the National Board of Professional Teaching Standards (NBPTS), are likely to place less emphasis on consistency and therefore allow more room for teachers to maximize the completeness and richness of their classroom videos. Indeed, applicants for National Board certification are instructed to provide a video "with as authentic and complete a view of the candidate's teaching as possible (Ittelson & Lorenzo, 2008, p. 3)." NBPTS guidelines also suggest that videos should show the faces of the teacher and the students, which suggests directing a video operator to move the camera's focus away from the teacher and to student groups during discussion or a small-group activity.

Being aware of the video production rules used by various agencies, and the implications of these rules for how videos should be recorded and interpreted, helps teachers, teacher educators and school administrators to not only optimize their videos within the rules but also to establish their own classroom video rules that are consistent with expectations and goals. We maintain that *understanding* rather than simply documenting what happened in a classroom requires demonstration-quality video, which can potentially include using a camera operator, a full-featured video camcorder, and a wireless microphone. In addition to using appropriate technology, teachers intent on producing documentation-quality videos can adopt EFP shooting techniques in which they control classroom events to facilitate video recording rather than using an ENG style that treats classroom events as news stories to be covered but not intruded upon.

Documentation (ENG) vs. Demonstration (ENG) Classroom Video

As part of a TED-Education special broadcast on PBS in April, 2013, Bill Gates emphasized teachers' need for more and better feedback on their classroom teaching (TED, 2013). Under a digital banner reading, "Our teachers deserve more," Gates highlighted the Gates Foundation-funded *Measures of Effective Teaching* (MET) project, which involved 3000 teachers submitting classroom video recordings for analysis by raters who graded teachers on a range of teaching practices (Dillon, December 3, 2010b.)

"I'm going to show you what this video component of MET looks like in action," Gates stated before showing a *Teaching Channel* video titled "Using Video to Improve Practice: Do It Yourself" (Teaching Channel, 2013) that features Sarah Brown Wessling, a Johnston (Iowa) High School English teacher, national Teacher-of-the-Year (2010) and the initial *Teaching Channel* teacher laureate. In the video, Ms. Wessling describes using a Flip video camera on a tripod "perched in the back of the classroom" to record her classes. "It doesn't catch every little thing that's going on. But I can hear the sound. I can see a lot.

And I'm able to learn a lot from it. So it has been a simple but powerful tool in my own reflection."

While Wessling is clearly referring to documentation-quality video, her *Teaching Channel* interview was professionally produced and includes multi-camera footage of Wessling conducting, and video recording, her English class. After showing the video segment Gates announces, "Every classroom could look like that." However, MET researchers did not trust a Flip camera "perched in the back of the classroom" in MET's large-scale field trial using classroom video to help teachers improve and to evaluate them remotely (Dillon, December 3, 2010a). Indeed, MET commissioned the development of a panoramic camera that records a nearly 360-degree view of a classroom (see Figure 1).

Figure 1. Teachscape *Lucy* panoramic camera kit.

As shown in Figure 2, the panoramic view provided by the *Lucy* panoramic camera allows observers to see much more of the class and even allows viewers to "pan" the camera while viewing (Teachscape, 2012).

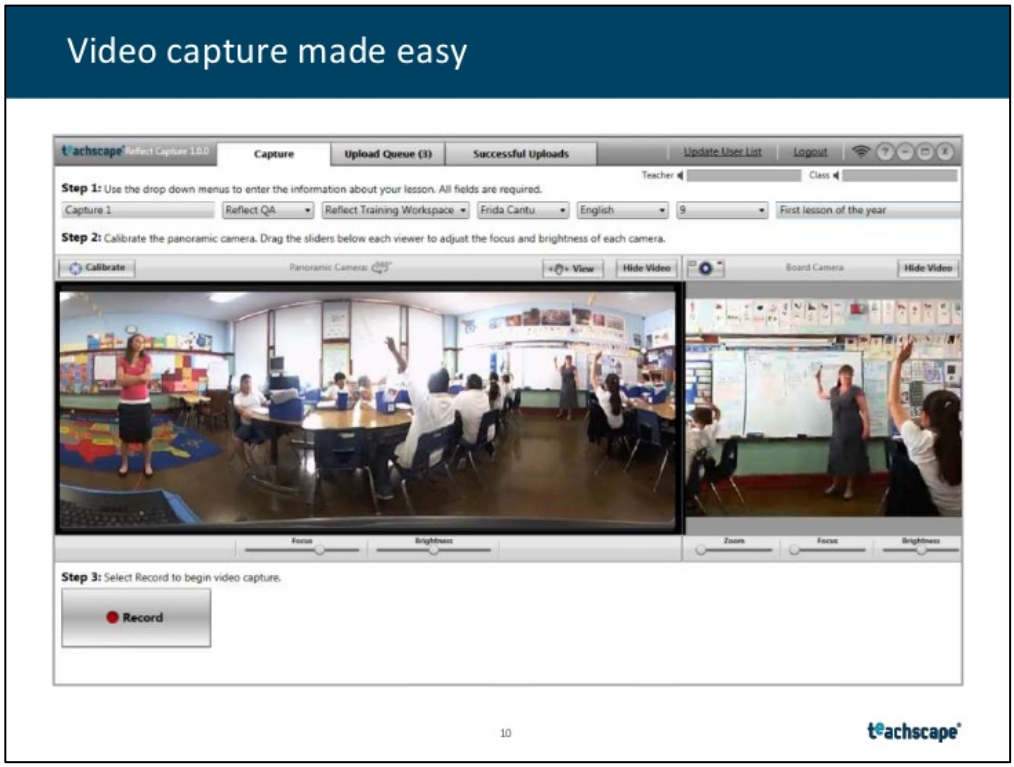

Figure 2. Teachscape panoramic classroom video recording.

While the panoramic video camera is a fascinating innovation, its value for observation compared to other video recording approaches has yet to be verified. The exotic 360-degree video technology overshadows other components of the MET classroom recording kit: a stationary camera to be aimed at the presentation area in the front of the classroom and two microphones, a wireless lavaliere mic for the teacher to wear and a second microphone intended to record general room audio, including students' questions or comments. The *Lucy* unit is designed to be placed in the middle, rather than the back, of classrooms. Therefore, the MET classroom video protocol was: Two cameras and two microphones positioned in the middle of the classroom with no camera operator.

In describing edTPA, TIMSS, National Board certification, and MET classroom video protocols, we look for insights that can be applied to classroom

video recording regardless of whether the particular agency is involved. For instance, we located a classroom video on *TeacherTube* that used a two-camera setup, somewhat like the MET protocol, to produce a demonstration video. In the next section, we deconstruct this teacher-produced classroom video along with a professionally-produced classroom video from *Teaching Channel* that reveals professional classroom video recording techniques that can be adapted by teachers in order to better capture classroom events. The following section is primarily of interest to teachers, although teacher educators and school administrators may find that further understanding of classroom video recording technologies and techniques can inform policy, technology, and training considerations, which will be discussed further in the concluding section.

Deconstruction of Classroom Videos

Deconstruction refers to a method commonly used in film analysis, looking "behind the scenes" of a movie based on what an expert speculates about the decisions made and techniques used by film directors (Berger, 2011). The method has also been used to analyze instructional videos (Fadde, 2009; Fadde & Sullivan, 2011) and here is used to deconstruct two demonstration-quality classroom videos. The goal is not to critique the videos, and they are not showcased as model videos. Rather, the deconstruction process is used as a vehicle to provide insights into video production decisions and techniques that are largely invisible to non-professionals. Terminology and concepts used in this section are common in professional video production practice and video instruction books (e.g., Halls, 2012).

The first classroom video to be deconstructed was self-produced by a teacher and posted on *TeacherTube* (2013). The second classroom video was

professionally produced and is available on the *Teaching Channel* website (Teaching Channel, 2013).

Example 1: Teacher-produced Classroom Demonstration Video

The classroom video "Construct Viable Arguments & Critique the Reasoning of Others" was uploaded to *TeacherTube* in July 2013. As shown in Figure 3, it used a two-camera classroom recording approach somewhat similar to the MET protocol. One stationary camera was directed at the front of the room and a second stationary video camera was directed at the students.

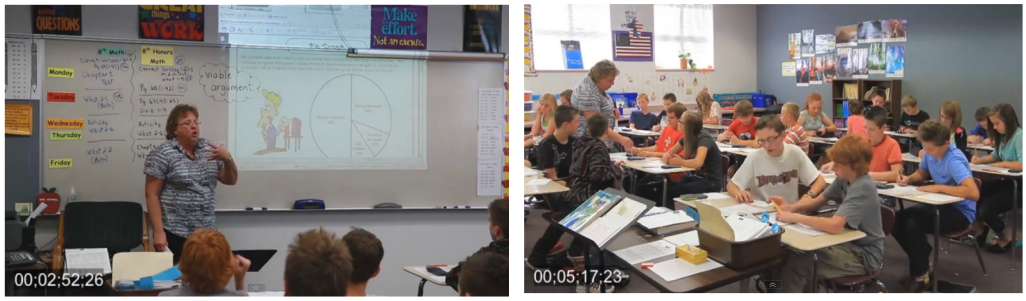

Figure 3. *TeacherTube* classroom video using two stationary cameras.

At appropriate points in the lecture, such as when questions are asked by or to the students, the video switches between the camera aimed at the teacher and the camera aimed at the students. Although it is possible that feeds from both cameras were sent to a computer software program and "live switched" between cameras, it is more likely that both cameras recorded during the duration of the class and the footage was transferred to a video editing program such as *iMovie* or *Movie Maker* where the running time code on both cameras would make editing from one camera to the other quite easy.

Neither camera is outfitted with an external microphone, which is not a problem for recording the teacher's lecture segment since she projects very well when delivering the lesson. Even if the camcorder used to record a classroom video has an external microphone input, a teacher who speaks loudly and clearly enough may not need a wireless microphone, making it a better choice *not* to use a wireless mic on the teachers since it adds risks to the shoot (e.g., running out of batteries, electronic interference).

In the "Viable Arguments" classroom video, however, audio becomes a problem when students ask or answer questions and when a small-group project is initiated. Although a camera operator takes up operation of the student camera, the video and especially the audio never get close enough to the student groups to hear what is going on. Anticipating viewers' impatience with the group activity portion of the video, a special effect was applied in the editing program to speed up the video and music was added underneath. At the completion of the group work the video returns to normal speed and proceeds with one student at a time coming to the white board at the front of the room to demonstrate solving a mathematical problem. Again, the teacher's audio is audible but the volume of students' audio is often too low to understand.

As demonstrated in the "Viable Arguments" video, audio often presents a greater challenge than video in recording and producing classroom videos. Audio cannot be "zoomed" as a video camera lens can be, so if audio is recorded by an in-camera microphone (the most common configuration) then it is necessary for the teacher or a camera operator to take the camera off of the tripod and move into the action of the student groups, a technique that is used in the second classroom video example.

Example 2: Professionally-Produced Classroom Demonstration Video

The second video, "Collaborating to Design and Build Stable Structures," was posted on *Teaching Channel* in 2013. As are all *Teaching Channel* videos, "Collaborating" was professionally produced. It includes a title, graphics, and an interview with the teacher supplemented by B-roll (classroom video footage superimposed over the teacher interview). It took considerable time and expertise to edit and post-produce the video. For our purpose, we aren't interested in the interview but only in the classroom *demonstration* portions of the video, consisting of a segment of direct instruction and a segment featuring a small group student activity.

The direct instruction portion of the video appears to be shot using a camcorder on a tripod with an operator who follows the teacher and zooms to a medium close up of the teacher as she lectures (see Figure 4). As with the TIMSS videos, the teacher can be seen to be wearing a lavaliere microphone and good quality audio of the teacher is recorded as she moves around the classroom.

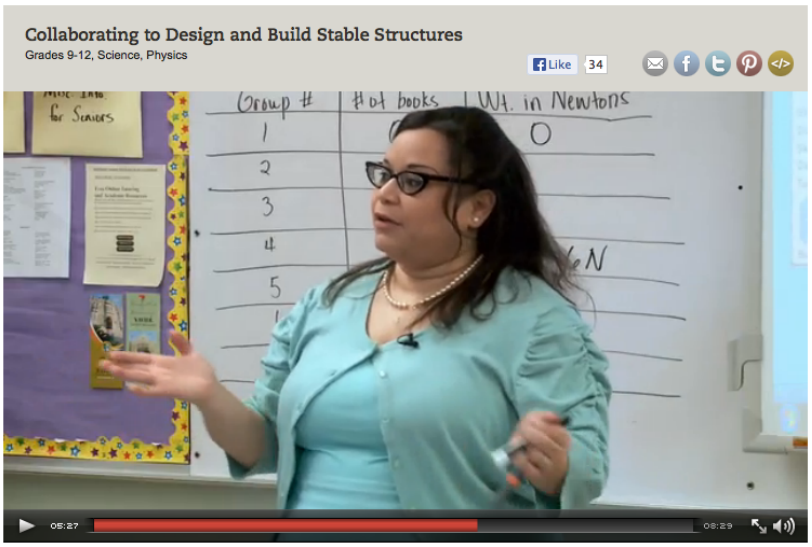

Figure 4. Teacher in medium close-up shot, with lavaliere microphone.

The "Collaborating" video reaches a level of production value beyond the TIMSS video approach when the students start a small-group activity that involves constructing supports out of paper that will support as many of their sizable physics textbooks as possible. A second camera operator takes a hand-held camera and moves right into the midst of the student work groups. The hand-held camera (and therefore the in-camera microphone) is moved closer to the action and uses a variety of angles that are not possible with the camera mounted on a tripod. Beyond adding aesthetic interest, camera angles can affect viewers' perceptions. For instance, people who are above the level of the camera are perceived as being more confident and powerful (Verleur, Heuvelman, & Verhagen, 2011).

Shooting EFP style involves treating the classroom as a "set" for producing a classroom video. Indeed, many *Teaching Channel* videos are shot by reality television crews (Rich, 2012) that are adept at manipulating the live event just enough to optimize the video. For example, it is possible that a camera operator involved in shooting the "Collaborating" video may have asked students to wait until the camera was properly positioned before completing a dramatic action such as placing the penultimate physics book on the pile (see Figure 5). The EFP shooting style, more than the equipment used, allows *Teaching Channel* videos to meet the organization's objective of showcasing authentic classroom teaching (Teaching Channel, 2013).

Figure 5. Hand-held camera shooting group activity.

Although *Teaching Channel* videos are shot by professional crews, the EFP techniques used can be adapted for use by teachers who have modest video equipment and production skills (Fadde & Rich, 2010). Key techniques include:

1) Actively shoot the teacher when delivering direct instruction.
2) If possible, put a wireless lavaliere microphone on the teacher. If not, choose a camera position that is relatively close to the teacher, such as a front-row student position.
3) Consider using two cameras, one for the teacher and the other for students, to capture more of the classroom.
4) Take the camera off of the tripod and shoot hand-held to capture small group activities. Take the camera, and with it the in-camera mic, right into groups. Hold the camera at or below the eye level of seated students.
5) Using the flip-out view screen on the camcorder, shoot student activities from dramatic high angles and low angles.

6) Follow the teacher, or let the teacher carry the camera, into working groups and engage students with questions and interactions.

EFP classroom video recording mindset. The key to capturing small group activities in a way that is "sufficient to understand what happened in your classroom" (edTPA, 2013a, p. 10) is to shoot EFP style, taking charge of the classroom "set" to get the video shots that tell the story. EFP is a mindset in which a teacher assumes the role of video producer, willing to intrude upon the natural setting in order to produce a high-quality classroom video—meaning a video in which viewers can see, hear, and understand what is happening in the classroom. Recalling the video production conundrum, the more "natural" teachers want their classroom activities to look on video, the more control they need to take of the classroom setting and video production process.

Excerpting vs. editing. In many assessment contexts video editing in which multiple video clips are compiled or "bad" video is excised from the middle of a clip is specifically prohibited. However, video protocols such as edTPA's two-segment rule often allow *excerpting*, which can afford substantial and often sufficienet video production control to teachers. A teacher candidate submitting to edTPA can set a video camera on a tripod in a position to record good audio as well as good video of his or her direct instruction. When the class transitions to a small group activity, the teacher can take the camcorder off of the tripod and shoot hand-held to capture the group activities. Later, using video editing software or using tools embedded in the camera or some video sharing sites, teachers can trim the front and back of video segments to produce one unedited clip of direct instruction and a second unedited clip of a group activity.

When teachers produce classroom videos without needing to adhere to restrictions on editing, they are still well-served to take more of an exceprting approach than doing extensive editing. Videos have more credibility as authentic

depictions of a situation if they have no apparent editing (Sullivan & Fadde, 2010). In addition, choosing segments to represent one's teaching is, itself, a reflective learning experience (Calandra, Gurvitch, & Lund, 2008; Fadde, Aud, & Gilbert, 2009; Yerrick, Ross, & Molebash, 2005). An experpting approach also helps teachers avoid being enticed into over producing videos with quick cuts, music, and special effects – what the edTPA guidelines call "Hollywood production" (edTPA, 2013a). The goal, after all, is not for teachers to impress viewers with their video production abilility but rather to produce a video that allows teachers to demonstrate their teaching abilities.

Conclusion and Recommendations

As became apparent in the blogosphere after the TED Education television special in which Bill Gates championed classroom video to give teachers more feedback, some teachers resist classroom video, seeing it as intrusive, unnecessary, and potentially misleading (Cody, 2013, May 8; Ferlazzo, 2013, May 19) while others champion classroom video as a tool for teacher reflection (Wessling, 2013, May 17). When uses of classroom video to *improve* teachers' performance and to *prove* teachers' performance are conflated such conflict is likely. Conflict is lessened by proper alignment between the avowed purpose of classroom videos and the technical considerations of recording and producing classroom videos.

There is nothing wrong with teachers recording their classroom activities using a Flip camera on a tripod in the back of the room, *if* the video is intended for documentation purposes to prompt the recall of the teacher or as a basis for discussion when the teacher can provide greater classroom context. However, teachers, teacher educators, and school administrators should be aware that viewers often find it difficult to understand and appreciate what happened in a

classroom based on video from a stationary camera on a tripod in the back of the classroom.

The EFP approach that can result in demonstration-quality classroom videos does not require expensive video equipment or advanced video production skills, but neither is it natural or comfortable for many teachers. School administrators and teacher educators need to encourage, equip, and train teachers in the complex craft of recording and producing classroom videos, especially videos used for high-stakes assessment, that are authentic but that depict classroom teaching and events with the richness they deserve.

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