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Video Cameras As Teachers: Toward the Transformation of Student-School Relationships in High School

(feature)

Video cameras have the potential to transform student-school relationships, but this potential is itself transformed by the contexts of their uses. In this paper, the stories of different video cameras—and the students they teach—show how an artifact can teach and can do so within the aims of particular programs while promoting development outside program aims. The purpose is to reveal different ways in which video cameras *participate* in school, affording actions that are not traditionally possible for students and forming camera-student entities that reveal zones of proximal development. Video cameras are shown to have the potential to teach students ways of participating in high school that truly further their development.

Introduction

Courses in video production have become popular in American high schools, serving as ambitious literacy programs, as electives in art and media, as vocational programs, and as part of technology-integration initiatives (Beaty, 2005; Campbell, Hoey, & Perlman, 2001; Goodman, 2003). The purposes and activities of programs vary considerably, sometimes being defined by individual teachers and sometimes by elaborate connections between media organizations, university faculty, and high-school teachers. Despite this variation, programs necessarily involve the use of video cameras. Additional equipment, such as lights, microphones, tripods, and editing programs, are optional, but the necessity of at least one video camera paired with the diversity of program ideologies creates a rich context for exploring the role of video cameras as agents of change. I have taken part in an unstructured after-school club, a vocational program aimed at preparing students for roles in television, a "new media" program seeking to bridge subjects and motivate students via video and other new media, an arts program with the goal of simply introducing digital video as art, and a documentary program aiming to help teachers integrate the technology and methods of documentary-making into their courses. Throughout, I have observed that video cameras have the power to transform school that has not been systematically pursued. This power arises from the video camera's unique ability to participate in the social life of a school while guiding students to new forms of engagement.

Previous work about video production has illuminated the potential for students to gain critical multimedia literacy, actively engage in school work, and pursue personally meaningful projects (Goodman, 2003; Miller & Borowicz, 2003, Reilly, 1998). Organizations such as the American Film Institute, Center for Educational Video (Goodman), and City Voices, City Visions (Miller and Borowicz) are spreading the use of video in schools because of beliefs about the utility of video production. *Digital Stories*, which frequently use video cameras, have been promoted as a way of developing identity (Davis, 2004) and a way of engaging student voice with school curriculums (Kulla-Abbott & Polman, 2008). Matthews (2006) has even explored very young children's use of video cameras, noting its capacity to develop children's understanding of representation. Youth media programs have sprung up worldwide and have been promoted by Apple, Adobe, and other corporations. Numerous youth film festivals have appeared (Campbell et al., 2001), and the Internet has numerous sites for youth and others to share their videos, making video more meaningful through the creation of a real audience. Most of these uses of video, however, focus on the product—the edited

video and all it does for youth. Without trying to minimize these accomplishments, I shift the emphasis to the camera and social interactions as mediated by the camera. My purpose is to demonstrate how video cameras become teachers—teachers that are sensitive to the contexts in which we place them but that are able to mediate student activities in ways traditional teachers cannot.

Theoretical Perspective

I approach the topic by taking seriously Latour's (1996) assertion that artifacts are *actors*: "There are only actors—actants—any one of which can only 'proceed to action' by association with others who may surprise or exceed him/her/it" (p. 237). This perspective emphasizes that the potential for action resides in the artifact—the camera in this case—as well as in the person and can be manifest only in the context of a camera, a camera operator, and a subject to be recorded. "The principle of generalized symmetry" is the central tenet of Actor-Network Theory (Miettinen, 2000, p. 181), thus things are viewed as equally central to an activity as the people and a camera can take on the role of a teacher.

The *network* part of Actor-Network Theory is equally important because it provides a fluid model of meaning and explains how a video camera can come to carry particular meanings. Networks are composed of connections between actors, simultaneously localizing and globalizing events: The defining feature of human activity is the ability to be in the actions of the moment and simultaneously in the places and past events that are connected to the present moment (Latour, 1996). Thus students using cameras are connected to the history of that camera and cinematography in general to the extent that these portions of the network are engaged. History and culture are semiotically present in the material existence of people, tools, and places, but it is the human capacity to activate different associations with the camera *at will* that make humans unique and the video camera a powerful tool. The sometimes "surprising" actions that Latour referred to in the quote above are those that seem to arise in the moment because of the particular affordances of that particular collection of actors. In this sense, regardless of how well planned a scene might be, an emergent quality to activity remains.

The equality between things and people is an assertion that coexists with the recognition of the unique human capacity to enact selected portions of networks. Actor Network Theory places meaning in the connections between actors but does not theorize about how networks are unequally accessible to actors. A cultural-historical perspective is needed to complete the picture of how video cameras teach. The *zone of proximal development* (Vygotsky, 1978) demonstrates an individual's developmental potential and alludes to the role of teachers in development. Valsiner elaborated, arguing that education is entirely about constraining some actions while *promoting* others (1997, p 195). As with the *zone of proximal development*, an expert other or a material structure created by an expert influences human actions so that new activities become possible. Social relations, therefore, are central to understanding individual change.

During adolescence, social interactions are theorized to become the leading activity (Karpov, 2003). Often, the social relations that have been the subtext of activities come to be central to activity for youth, and as relationships become increasingly central, school gradually becomes infused with new tensions as *identification* and *resistance* become entwined with other developmental processes:

> The desire to move beyond participation to responsibility is in itself an act of resistance, a resistance to being dependent and controlled by another. The motivation cannot be mastery of the other's skill but to be the other by means of mastery of the skill. (Litowitz, 1997, p. 482)

Thus resistance to authority is developmental: It is necessary to "own" the material, to personalize it, as part of demonstrating mastery.

The connections between learning and development are complex (Vygotsky, 1978), but development has most clearly occurred when students initiate and regulate an activity without an external prompt (Vygotsky & Luria, 1994). Development in this sense is about mastery of the environment rather than adapting to it, and having the freedom to *select* particular actions (or meanings) is necessary to fulfill a shift to higher mental functions. Resistance is thus viewed as an effort to create that freedom—to express agency in conjunction with mastery. Development occurs when mediators are no longer needed or wanted.

Resistance, however, is rarely appreciated in school. Schools tend to reward obedience more than self-sufficiency and punctuality more than agency. A typical, "factory-model" high school requires students to move from room to room as if they are a product on an assembly line. "Owning" the material being learned is not encouraged in such schools. Too many youth choose to resist by dropping out (Fine, 1991), and recent research suggests that the numbers of high school dropouts has been increasing (Heckman & LaFontaine, 2008). Schools should be places where learning leads to development (Holzman, 1997), but too often as adolescence emerges, development seems to interfere with learning because of the structure of schools. Video cameras not only have the potential of attracting students who are resistant to traditional literacies (Beaty, 2009), but they can help students find ways of developing within relatively rigid structures.

Teaching Movement

The first thing students must do when they produce a video recording is to move, and this is more important than it may first appear. Students are usually confined to their seats, but when a student picks up a camera, the student acquires a special status: The camera, with the authority and purpose of a teacher, leads students from their seats and toward something that will fulfill the needs of a project. There is little of interest to record while sitting in their usual seats, thus the camera promotes a search for new vantage points and new subjects. In the after-school club, students had no assignment, but the camera guided and gave purpose to their actions. They began by recording the teacher's desk. That was where they were handed the camera, and the lens found and explored what lay there. They quickly shifted away from the desk, circling it, and then to the back of the room to spontaneously and casually interview one another. The scenes shifted from passive recordings to discussion and teasing as they moved away from teacher-owned places. But the video needed more interesting subjects, and they first sought escape from the classroom via the windows. When finally they realized they could leave the classroom, the students wandered the halls and into other classrooms and offices in search of something to record, never to return to the classroom during their few weeks of involvement in the club. The students built on what their peers had done, collectively showing movement away from teacher-owned places and later back into them but with a new sense of agency. Without any incentives or assignments, the camera guided and shaped students' movements. In this way, cameras teach movement by creating a demand for a subject, and together, a camera and student form a pair that are granted permission to move.

The agency for movement emerges from the unity of camera and student. Camera-student entities are allowed to move and often find many other opportunities to reorganize the usual social structure: In one school, the teacher depended on the camera to be a hallpass, thus embodying his authority so that students had permission to move around the campus. And students became vehicles for cameras, serving the "needs" of the video camera while developing their own purposes. Camera-student entities explored school buildings, sometimes exploiting the freedom to look for friends. They occupied places that "belonged" to teachers, administrators, and other students to conduct interviews or to capture an image. They determined who could talk and on which topic. By connecting themselves to a camera, students gained power within the social structure—a power that was possible only through a connection with a video camera, existing in neither the person nor the artifact but in their

union. Once students had returned the video cameras, their ability to move was immediately constrained again. The camera was like a powerful friend who gave its operators entrance to places and events they had never been able to go before.

Illustration 1 shows how a pair of students were able to occupy the place where the teacher usually stands within a classroom. They break with the norms and move around the room while posing questions and determining who is allowed to speak. The students struggle with it, not comfortably assuming power, and the teacher did not entirely relinquish her power, overseeing the temporary shift from the front and communicating a message of control that was consistent in the school. The camera prompted the students to leave their usual classroom in search of people to interview, and finding a cooperative teacher, it worked with the students and a non-working microphone to assert themselves. It is only a beginning: Some programs work with students to develop questions and techniques for interviewing, but it is the camera that leads students to positions where they are permitted to assert their own agendas. In their first interview, seen in Illustration 2 [link to be established], the interviewee takes over and contributes to the lessons of the camera by telling them that their questions are insufficient. This interviewee goes a step further by trying to control the microphone, grabbing the power to set the agenda. The students' questions never truly develop across the interviews, but Skinny shows some progress in asserting himself. The agency demonstrated in the classroom was particularly unusual for these students. The pair was part of a group who were identified by the teacher as the "good" students but who normally sat in the back of the classroom, avoiding interaction with their classmates. Their series of interviews brought them into contact with many students they would never have spoken to otherwise, and a desire to teach their younger classmates about safe sex emerged from the project. These students were a prime example of what it often means to be a good student in a large urban school: They were passive and quiet and stayed to themselves. But it is these qualities that will limit their progress in future settings, and it is these qualities that engagement with video can change.

The students who associate themselves with a video production are freed from many institutionally imposed constraints; camera-student entities create spaces in which camera and student have the authority to initiate and direct events. Camera-student entities gain permission to miss classroom activities, wander hallways, begin conversations, and transform events and places within the camera or through "sets." This is a dramatic shift in the social structure for many students. At its extreme, two students from the after-school club and a camera "forced" a teacher to reveal his first name. Camera-student entities gained new abilities through their association to tease people, script people's actions, and determine which conversations mattered. These new actions are what make video cameras a unique teacher: Cameras engage students in the social life of their school. They get students to speak with people they never would without a camera, crossing material and social boundaries to do so. In these and other ways, the material and social limits on action are rewritten through the collaboration between cameras and high-school students, and students are given an avenue to rewrite their relationships. Even if they are not immediately able to continue these forms of agency without the camera, the camera has served as a teacher of relationships within school.

Connecting To The Camera

All video cameras promote movement from an assigned seat, but not all students connect to the camera in the same way. Students bring different histories to their experiences, and the program shapes what and how the camera teaches. The most basic influence the program has is in the type of equipment selected, which begins with the camera. The *affordances or action potentials* (Gibson, 1986) are the most salient and powerful influence because they reflect material limits, and even when there is not an absolute limit in terms of what is possible, the design of a camera shapes video productions. Video cameras that are used in youth programs can roughly be grouped into two categories: prosumer cameras and camcorders. The first camera I used with youth was a Panasonic S-VHS camera, which is a

large, professional-like or "prosumer" camera. At the time, it was selected simply because it was available. Prosumer cameras are more like what are used in television studios and afford the use of Teleprompters and dollies in ways that camcorders do not, thus it was a natural choice for the vocational program. The other cameras were digital and Hi-8 camcorders, which used newer technology and were smaller thus more easily handled. They are more affordable as well. For present purposes, the significant differences are the size and the compatibility with accessories.

Prosumer cameras limit movement relative to camcorders—particularly when bodies are relatively small or weak. These material affordances become intertwined with social affordances (Costall, 1995): For instance, textbooks in video production and manuals typically encourage the use of tripods because the image is more stable and "professional," yet amateurs rarely choose to use tripods (Chalfen, 1992). Prosumer cameras encourage greater use of tripods simply because they are more tiring to carry. Furthermore, this model creates more stable images when held because they were designed to rest on the camera operator's shoulder, which discourages rapid movement and steadies the image. Thus even without examining the "technology," prosumer cameras lead to more professional camera work.

Shakes, bumps, and jerks can clearly make an audience dizzy and can distract from the message of the project, but the *relationship* between cameras and camera operators is more intimate when the camera is held—an intimacy that can be perceived by audiences and that was exploited by the French New Wave and cinéma-vérité movements (Monaco, 2000, p. 96). When cameras are handheld, they move through space with their operators as one body —truly as a camera-student entity—and often the operator becomes apparent in the recording because the movements demonstrate human involvement whereas the professional approach usually attempts to make the camera and its operator invisible to the audience. In general, when cameras are held, they move more easily, more often, and in more ways. On the tripod, the camera does not depend on the person for support, and movement is relegated to the limited movements of the tripod, but when a person holds a camera, the movement tends to flow, rarely stopping. A pan turns into a dolly (walking in this case) that turns into a tilt and back into a pan in one movement, frequently combining more than one of the movements distinguished in textbooks. Tripods make such combinations more difficult, if not impossible.

Holding the cameras is a different kind of experience for students than using it on a tripod. Furthermore, handheld cameras increase the opportunities for agency. In Illustration 3 [link to be established], Wicket and Jerome demonstrate this to the extreme as they moved throughout their campus, looking for shots to use in an art video. The camera rarely stopped moving as they walked, turned, tilted, rotated, and zoomed in and out. Zooming is a type of movement that a camera uniquely affords, though it is more symbolic because it happens only in the world of the camera. Zooming is encouraged by the fact that cameras are usually designed such that the hand that holds the camera naturally finds a finger on the zoom toggle button. If the camera had been on a tripod, the camera operator would not most probably have had her or his hand positioned for easy access. Thus zooming is encouraged and becomes part of a repertoire of symbolic movements that cameras afford and thus teach. The agency of symbolic movement is clearly visible when students move through locked doorways via a window or across rooms without being noticed by anyone. Symbolic movement can create worlds apart from the world of school by using the camera's frame to show only what is desired—to perhaps distort the look of something. These symbolic movements will be further described later, but they are potentially more personal—more intimate—when the camera is held and the world is experienced through the lens of the camera.

The use of a tripod, lights, external microphones, or other equipment distances the camera operator from the events being recorded because the agency behind the video production is distributed, and the camera operator's actions are further constrained. In **Illustration 1**, the camera operator exerts less agency than the interviewer because she needs to follow along. She had the ultimate power in distinguishing when the interviews should start, but she did

not ask the questions or determine who would speak. Additional equipment lessens the ability of the camera to teach students to move. The need to coordinate between more participants leads to students being less visible: They speak less often and less often initiate meaningful changes in the recorded events. In general, the more participants who are involved—whether they be human or artifact—the less agency was demonstrated by camera operators in events. In every case where students used tripods and/or lights, neither the camera, camera operator, nor the subjects moved far from their initial positions. Thus if increased agency is a goal, a camcorder and the absence of a tripod and other equipment is recommended. On the other hand, the more professional-looking cameras and microphones and perhaps a person to monitor the sound can improve the quality of the video and can carry a message of professionalism to school authorities, subjects, and passersby. Thus the equipment used shapes what youth will do and how they will experience it while also affecting the connections they have with the people around them.

Teaching To The Programs While Facilitating Appropriate Resistance

The choice of equipment is only one way that programs influence the meaning of video work. Programs shape the connections students develop with cameras through the ideologies that are taught and through the constraints imposed on camera-student entities. Meaning is created in how people talk about cameras and with the activities that are most frequent (Lefebvre, 1974). This is visible, for instance, in the tendency for students in the Television Production Program to use tripods while students in the Digital Arts program attended only to the image and not the audio of their videos. Similarly, distinguishing and spending time practicing closeup, medium, and long shots in Television Production pushed students toward a static use of distance in their projects: The program promoted using a variety of shots but discouraged showing the movement from one to the other. In Digital Arts, the movement was frequently key to the art. Programs establish common vocabulary and practices (Lefebvre) in cooperation with all the people connected to the program and with the more silent actors—the textbooks, production equipment, buildings, and furniture. Human teachers directly shaped the cameras' lessons by assigning particular types of projects, controlling access to equipment, and providing lectures, reading, and examples to frame the assignments. In the Digital Arts program, the idea of making art with video was taught mostly by example, and students seemed to connect it to a more familiar genre: music videos. Thus they sought images to place to music. The New Media program relied on well-known genres such as public service announcements, commercials, and news stories and used particular constraints to frame less familiar assignments, such as doing a silent video with tension and resolution or a 30-second action-reaction piece. Furthermore, they required written documents of plans before access to equipment was granted. In Television Production, the advanced students produced a five-minute news program that was broadcast to the school four days a week, and the "news desk" in the classroom was a constant reminder of this genre. The genre as a whole or in part was thus integrated into the projects of several beginning students. These examples and assignments had a tremendous impact on camera-student entities because the video cameras remained meaningfully connected to these products, embodying them in the subsequent activities in which students engaged.

Yet, despite all the shaping programs do, video cameras create possibilities for students to resist institutional constraints while taking initiative. Some forms of "resistance" are straight forward and invited by teachers: Students made "how to" videos of skateboarding techniques and favorite recipes—whatever personal interests students had. Some created stories, imitating horror films or karate movies or addressing topics such as teen pregnancies and illegal drugs. These students brought their concerns and interests to their projects, and although one teacher expressed concern about what administration would think of some topics, these personalizations were invited. Such personalization is possible with many school assignments, but in making a video, other people are usually involved. Why might a school principal be more concerned about a video of a drug deal than an essay about it? To write about something is far more removed—safer—than to incorporate other students into

pretending to be unseemly characters. The social nature of a video production makes the pursuit of some topics much more anxiety provoking for teachers yet that much more meaningful for youth. Of course, the use of props such as guns create very practical anxieties and led one pair of teachers to stop all productions after school security became involved. Nevertheless for students who work together to create worlds that are unlike anything in school or that show school from their perspectives, they have initiated communication about topics that are their own and had them validated by the cooperation of fellow students, teachers, and other adults.

Some students, though, found uninvited avenues for their resistance. Many introduced humor and satire into assignments such as "commercials" to allow self-expression while fulfilling the assignment. Some of the satires critiqued the assignment as well as commonly held perspectives without provoking sanction. Some students took advantage of assignments to seek out or create friends, to flirt with and tease peers, and to express non-institutional and perhaps unacceptable opinions of people, objects, and places. Sometimes, students found other uses for their videos without ever fully being aware of them: Luke was such a student who did not create a high quality video but, in the pursuit of a documentary, was able to create a role for himself in a classroom where he had none and to subsequently build stronger relationships with his peers (Beaty, 2005). In his video, the camera helped him create the agency to ask questions and even tease fellow students, but his three days of taping show the struggle it was for him. The camera scaffolded his interactions by posing questions even when he remained silent, by gaining the attention of his peers so that they spoke to him, and by providing a platform for his observations, but it was only as the third day neared it's end that he successfully entered into typical friendly banter and was acknowledged for his participation. The camera promoted normal interaction and acceptance from his peers.

Cameras often became tools of socialization—they allowed students to play with their identities, relationships, and perspectives—but these were transformations of the program's assignments. The assignments were given as practice and showcase of the their skills in video production, yet students found ways of changing their experiences of school. They spontaneously pretended to be news reporters or guides to their schools. One pretended that a mural was a real place while others created fictional places out of classrooms and campuses. Some students were allowed to take cameras home, thus literally bringing their more personal worlds into the school world. Sometimes, the officially off-task shots were as important to the student's development as the shots that were included after the final edits. This may be apparent when video techniques can be seen to develop through practice, but some of the resistance embodied in off-task uses of the video camera facilitated the merger of cognitive and socio-emotional development via social relations, initiative-taking, and reflection about their worlds and their positions within them.

Teaching Meaning-Making

Lived experiences are rarely reflected on (Lefebvre, 1974), yet the meanings that emerge from reflecting on day to day events are often a form of resistance because they are not the same as officially sanctioned meanings. Video cameras promote reflection about individual experiences while providing ways to change the meanings assigned to people, places, and events. I refer to events with this sort of meaning-making as instances of *video graffit*i. Like regular graffiti, the artist has the opportunity to rewrite the meanings of a "text" (Hodge and Kress, 1988), but in this case the mark is not on the original object; it is on the videotape as visible and audible only to those who have access to the recording. There is an illicit quality to these acts—which students acknowledge—because they are re-presenting commonly held meanings, though the students have done nothing truly wrong. These events most clearly *translate* actors and portions of networks (Callon, 1999) and are in effect teaching students to create and take seriously their own experiences.

The clearest case of video graffiti arose in a project with many instances of video graffiti.

Illustration 4 [link to be established] is of a shot consisting entirely of a "dialog" that Wicket had with items hung on a wall while his partner Jerome called to him. A poster is shown that says, "Give yourself a chance to be great!" and has cartoon drawings of a polar bear and a penguin. Wicket reads the bubble above the bear, which says, "Who me?" He then turns to leave but changes his mind—an intention visible in the pan of the camera away and quick pan back to the poster. Instead of reading the bubble above the penguin, which says, "Whose then?" Wicket gives it his own words, "And the penguin says, 'Yes, you. Yes, you!'" emphasizing it by zooming in and out. He then laughs as he turns to see what Jerome has been wanting him to record. (A second bubble above the bear says, "Hey, it's not my responsibility!")

The poster is aimed at convincing it's readers to take responsibility for their future. An internet search revealed that the poster is sold as a "self-esteem" product. Wicket's dialog with it suggests first that he had not given it much thought and was ready to dismiss it until he saw an opportunity to make a joke out of it, but the words he gave the penguin are more aggressive than those originally offered. During his later narration of the video, Wicket described his own actions as "just kinda fooling with it," yet this was one of many instances in which humor was used. Particularly in instances like this one, humor acts as a translation of common meanings. The school had many posters and signs with "inspiring" messages around the campus, but in this part of the hallway, it was the only mass-produced wall hanging; the rest were student-made. Significantly, Wicket did not respond to any student-made artifact with a joke, saying instead of the next one, "There's a classic right here." Always, he showed admiration for work by fellow students. Thus his aggression and derision within this shot is only toward the didactic, impersonal poster. Wicket and the camera translated the poster's message, revealing the implicit aggression involved in telling someone to be responsible. This kind of translation may happen frequently, but the video camera encouraged Wicket to focus on the poster and allowed him to present his translation in a semi-permanent form, providing him and others with the opportunity to reflect on the re-presentation.

Video graffiti redefines or mocks objects and people. It makes use of words but also uses visual techniques. As in Illustration 4 [link to be established], Wicket frequently zoomed in and out on people and objects as a way of distorting and playing with the image—shifting perceptions. In these situations, video cameras seem to question the subjects. Similarly, a student in the after-school club walked the halls with different special effects turned on. Frequently, students simply recorded the experience of walking through some part of their schools. In this way, the lived experiences of camera-student entities become re-presented or distorted while escaping the transitory nature of lived experiences. And in the process, these meanings are strengthened and empowered—networks are expanded (Barab & Roth, 2006, p. 6). Video graffiti did not occur frequently at other schools, arising mostly in narrations or happening without being recorded to avoid repercussions. Only the Digital Arts program and the after-school club, where exploration was encouraged, contained frequent examples. Recordings of movement, however, were more common.

Wicket and Jerome's project contained a lot of video graffiti. The affordance to distort images via the zoom was constantly used by Wicket, and he prompted Jerome to use it. Their video, furthermore, is characterized by opposition to, mockery of, and disregard for authority in different forms, making distortion and video graffiti all the more relevant. The theme is visible in a small way in their creation of video graffiti as described above, but it is more evident in Illustration 5 [link to be established], which shows a student running and hiding from security, and in Illustration 6 [link to be established] involving the same security, in which Wicket and Jerome call on them—through a window—to come "stop them," as if they are doing something illicit. The video camera in this particular context is a tool for re-presentation of school playfully in terms of repression. These shots had nothing to do with the assignment to complete a digital art project, but the theme carried over into their final project (see Illustration 7 [link to be established]). The final project is simply a composition of a few images, intended to go with music. Its interpretation as a critique of authority is clearer when the spontaneous narrations that accompanied the original shots are noted. Illustration 8 [link to be established], for instance, shows the recording of the church. Jerome

can be heard to call it "the church from hell," while Wicket says, "They crucify you if you don't believe in the church." In an interview, he further added that they are not Christian, and given the context that the youth are in a boarding school for Native Americans with a history of cultural persecution, the significance of the Church as a colonizing power is clear. The poster of "Jesus" was spoken about as "looking at you" and the antenna was described as a mystery, they do "not know what it's used for." These and many items and people are re-presented as part of the surveillance and control of students. This part of the student experience is made relatively permanent and possible to reflect upon because of the video camera, and the project led them to compose their ideas.

Video cameras make it possible to create new worlds from old worlds, enabling people to rewrite reality as they know it in visual and audible form, re-presenting events and other participants. Moments of play, resistance, and re-creation are available for replay and editing. Viewing the world through the lens of a camera immediately promotes new ways of seeing and can make objects, which were previously disregarded, the focus of contemplation. A student will see the world differently when looking through a camera lens and again when looking at the work during playback and editing. The camera teaches students to see details they had not previously noticed and to gain perspective by providing a new lens that comes with the power to change perspectives at the touch of a button. This affordance to shift perspectives promotes critical thinking and encourages students to reflect on "school" when projects are undertaken as part of a course and recorded on campus. This gives camera-student entities a power to restructure school completely within a digital world. Even if no one ever sees the video that was recorded, it takes on a semi-permanent form and there is an assumption that people will see it. This assumption is sometimes exploited by camera operators to embarrass, humiliate, coerce, or flatter a person who stands in front of the camera, and it makes the camera much more human—much more noticeably an actor—than other artifacts. It allows students to borrow the power of authority figures through its connection to a wider authority—an audience. One significance of a video camera in schools and outside them is in the shared meaning of the video camera as a conveyor of audiences—the imagined, infamous "they" that constrains social interactions but is "owned" by camera-student entities. The perceived audience makes the student's world all the more real.

Cameras As Teachers

As the video camera becomes visible as an actor in events, it—like all aspects of the material environment—can be seen as contributing to education. Video cameras have a special role as a teacher that harnesses and nurtures youth development. They promote initiative and definition in social relations, using and furthering conceptual development to define the student's place in the world (Karpov, 2003; Vygotsky, 2004). Video cameras teach agency in actual social situations by becoming a tool for taking initiative and shaping events and—more abstractly—in the creation of new worlds out of old worlds. The unity between cameras and students creates a zone of proximal development in which the camera serves as teacher. It teaches by keeping students on task while allowing detours and encouraging initiative. Wicket and Jerome's project demonstrates that their actions were confined to the video production even while they sought friends and played around because the camera dominated their wanderings through the school. The camera gave them permission to wander while maintaining a sense of purpose, and most importantly, it scaffolded their activity so that they were the ones to initiate and create meaning. Additionally, the camera promotes a redefinition of worlds because it enables students to explicitly present a portion of their lived experiences. Their experiences of the social world are the material under examination. The camera, in effect, creates a *third space* for students to combine meanings from different discourses—those they are comfortable with and those they are learning or creating (Gutierrez, Baquedano-Lopez, & Tejada, 1999). Words and images and their associations are then preserved in the recording and re-experienced every time they are played. The camera thus promotes transformation of student-school relations as it gives weight to student perceptions.

In all the programs, some of the camera-student entities tactically transformed their assignments, invisibly or temporarily transforming their relationships with school. In general, camera-student entities found ample opportunities to transform agendas because it was relatively rare for instructors to be present during recording sessions. Thus students exploited their production activity to look for friends, to explore places that had always been inaccessible, to elevate their position in the social hierarchy, to speak to people they never had before, to manipulate images and audio that would distort school as they knew it, and to assert their identities and selves into alien academic settings. These officially "off-task" actions became part of the project and part of the lessons the camera had to offer. These lessons had less to do with mastering the art of video production than the promotion of youth development. Programs established agendas, rules, and projects that minimized any far reaching or lasting social transformations—there were no revolutions—but in anticipation of institutional responses, students found ways of avoiding obstacles and punishment by not recording off-task uses of the camera, by designing projects that transformed actions from prohibited actions into acceptable ones, and by at least one explicit request to use a camera for unassigned activity. The stories of these video cameras are thus diverse because each camera-student entity enacted different portions of networks as their experiences mingled with the actions embodied in the cameras.

There appear, however, to be two major obstacles to cameras becoming effective teachers of agency: First, an affordance requires some sort of discovery. If a camera operator has not seen or heard about a particular use of a camera and their access to experimentation is constrained, that particular action is not likely to occur. Cameras, for instance, were frequently used to record an ongoing event rather than to create a new event because students never saw how a camera could be used to change ongoing activities. The necessity of scripts in some programs limited student experimentation, and the decreased agency experienced by camera operators working with more equipment and people were an obstacle. Thus the ways of talking about and using cameras as a class both limit and inspire activity as camera-student entities are directed toward standard program practices. The second obstacle to a wider range of camera uses is that camera-student entities are constrained with the threat of punishment or by withholding access to equipment. "Sanctions" against some actions were imposed (Costall, 1995), particularly where safety and personal rights were concerned. One teacher frequently joked about caring more for the cameras' than students' safety, and thus avoided more direct prohibitions. The constraints on access to and use of video equipment was intended to protect equipment from damage and theft, but it also prevented most forms of play and exploration, limiting how much teaching the camera was able to do.

A video camera, however, always teaches about agency. Students learn about actions that will produce a video, but more profoundly, they learn about how to change their own participation in school. Video cameras mediate student-school relationships. They teach by giving students the power to move around classrooms and campuses, to determine immediate agendas, to designate who and what are important, and to transform the meanings that are acknowledged. More fundamentally, the camera teaches by requiring students to become active—to get out of their seats and become engaged in school. Camera-student entities cannot sit behind a desk. The traditional school structure is at least partly subverted as students become directors of their own school activities. Again and again, students found small yet meaningful ways to transform assignments as they sought friends, asserted personal meanings, created new roles for themselves, and were led to new actions. They were being taught about agency—about not having one's purpose defined by the context. The work of investigating whether this is carried over into activity without cameras remains to be done, but students routinely spoke about and demonstrated agency and pride in their work, suggesting that video cameras have a role—particularly in traditional schools—to teach students new ways of being in school.

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