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Ewa McGrail
Georgia State University, emcgrail@gsu.edu

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Ewa McGrail

Georgia State University

30 Pryor St. Unit 6

Atlanta, GA 30303-3086

emcgrail@gsu.edu

(404) 651-0181

Fax (404) 651-2546

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Abstract:

When teachers develop successful instructional strategies and efficient classroom management, they establish control and assert authority so that learning can take place in the classroom. The teachers' experiences with wireless laptop technology in this study, however, demonstrate that ubiquitous access to this technology in the classroom can sometimes create challenges for teachers, from managerial, curricular, to communicative perspectives. Exploring these challenges and their complexities in this report is meant to present a more balanced picture of technology integration in education, the one that takes into account not only the affordances and the possibilities but also the challenges and the constraints of it for teacher pedagogy and student learning. The analysis concludes with implications for professional development and policy.

Challenges to Teacher Control in the Laptop Classroom

"They hate it when I freeze their screen. They absolutely hate it. But I get their attention."
-- Jewel, Grade 10

"You never walk by a kid in the hall that he's sitting there doing homework; he's sitting there doing games or doing Instant Messaging…I don't think they see it as an educational tool."
-- Claire, Grade 11

"I don't get as much done because it takes 10 minutes at least for students to get set up. There is the inevitable, "Well, I can't use my battery." "I've only got 10 percent left."
-- Mark, Grade 10

Introduction

When teachers develop successful instructional strategies and efficient classroom management, they establish control and assert authority so that learning can take place in the classroom. The opening quotations in this article, however, demonstrate that ubiquitous access to wireless laptop technology in the classroom can sometimes create challenges for teachers, from managerial, curricular, to communicative perspectives.

As I uncover the origin of these challenges in the present work in light of theories of teacher control, I hope to present a more balanced picture of technology integration in education, the one that takes into account not only the affordances and the possibilities but also the challenges and the constraints of it for certain aspects of teacher pedagogy and student learning. I conclude with implications for professional development and policy.

Teachers and the Theory of Teacher Control

Traditional classroom teacher control theory (read also traditional pedagogy) implies a kind of domination. Teachers who subscribe to the traditional classroom teacher control theory strive to become the ultimate authority and source of knowledge. They also tend to see students on the receiving end of the instructional process (Honey & Moeller, 1990). This vision of teacher control is

rooted in "the deep grammar of schooling" (p.31), that is a larger and underlying institutional school culture, including school routines, policy, resourcing trends, as well as professional development (Lankshear & Knobel, 2003). Within this highly institutionalized system of practices and policies, the teacher is perceived as an ultimate authority in subject matter, the curriculum, and the orchestration of the learning environment and resources. To use Oyler's (1996) terms, the teacher is seen to be both *in* authority "(controlling the flow of traffic and of talk in the classroom)" and *an* authority— "who is the knower" (p. 21) of sanctioned forms of knowledge.

There is nothing wrong with the teacher being both *an* authority and *in* authority over knowledge and conduct in the classroom. In fact, every teacher needs both types of authority to be able to execute his/her professional goals that accrue from his/her position as an educator in the classroom. A power dynamic of this kind becomes problematic, however, when the teacher is the only one who contributes to knowledge construction in the classroom. It is further compounded when the teacher is the only one who has absolute control over all aspects of the learning process.

Such a vision of the teacher is not only unrealistic, but also rings false, because as contemporary classroom practice reveals, the teacher is not the only person who is responsible for learning outcomes in the classroom. In fact every student contributes to learning objectives through his/her individual responses to each aspect of classroom activity (Manke, 1997).

In a more student-centered classroom control theory (classroom pedagogy), on the other hand, a teacher's authoritarian style of classroom management may yield to less controlling roles, such as *directing, acilitating*, and, *assisting* (Fosnot, 1996). The teacher becomes the catalyst for students' learning; students are invited to share the power structure of the classroom, which allows them to initiate as well as co-share decision-making about learning activities during the instructional process.

Therefore, within this latter orientation, sometimes referred to in the literature as "humanistic pupil control ideology" (Lunenburg & Schmidt, 1989), the classroom is conceived of as

an educational community that supports cooperation, collaboration, and experience. Teachers who hold a humanistic orientation strive to create a "democratic" community "with its attendant flexibility in status and rules, sensitivity to others, open communication and increased student self-determination" (Lunenburg & Schmidt, 1989, p. 37). Davies (1982), who studied students and their power relationships with teachers in Australia, saw teachers' handing over of learning to students as examples of educational and socialization agendas. We are also reminded that such agenda setting needs to be constantly renegotiated with those of students' (Delamont, 1983) though. Cooperative learning and constructivist teaching theories of classroom control translate effectively the educational and socialization agendas into their student centered practice (Keyser, 2000).

Even though the traditional and student-centered classroom control theories are at opposite ends of the continuum in terms of the locus of control and knowledge authority that each of them offers to the student, they both place the teacher in the position whereby his/her degrees of control and authority can be, and often are, mitigated by certain internal and external influences.

Examples of internal forces affecting teacher control and authority are dynamics such as teacher educational background, teaching experience, or philosophical orientation. In fact, the teacher's philosophical orientation, that is, what a teacher believes about their discipline, students, the curriculum, and their roles in their profession, strongly determines the teacher's choice of classroom management styles, instructional activities, and the ways of securing the learning environment conducive to the desired learning (Parajes, 1992). Similarly, teachers' self- efficacy beliefs (Bandura, 1997) about themselves as professionals and technology users are strongly influenced by teacher prior educational, professional, and technology training backgrounds. Strong self-efficacy beliefs regarding teaching in general, and also with technology, are a result of frequent and successful teaching experiences and technology applications in teacher instructional and educational practices. Examples of external influences, on the other hand, are time, curriculum

requirements, institutional policies, mandates, and pressures from the student and parent community, to name just a few.

A more recent factor to consider in the latter group of external influences is wireless laptop technology. The scarce research available that examines how this technology can challenge, or even limit, multiple areas of teacher control (Bhave, 2002; Callister & Dunne, 1992), has pointed to classroom management, communication and interaction, and authority and power dynamics as the areas likely to be affected by ubiquitous access to technology in the classroom. More specifically, Bhave (2002) contended that wireless technology materially transforms the classroom environment, requiring from teachers to reconsider not only "the topology of the room and the interplay of these topologies with the existing technologies, such as projector or whiteboard" (p. 18), but also the "new etiquette and protocols for control" (p. 22) within this new environment. Eye contact, teaching format (lecture, discussion, group work), as well as the student's manner and quality of classroom participation, Bhave argued, are other domains of teacher control that are likely to be challenged by ubiquitous access to wireless laptop technology in the classroom.

In the same vein, Meeks (2004) argued that the presence of wireless laptop technology in the classroom can negatively affect some aspects of power dynamics between the instructor and the students, and among the students themselves too. For example, she reported a challenge for her as instructor to keep the users of fast-laptops from distracting others while the users of slow-laptops catch up. She also noticed how "the private space of a student-owned laptop becomes a public space" in the classroom in situations where she was looking over her students' shoulders not only to monitor their progress but also to help troubleshoot (1st paragraph in the section, *Private/Public Space*). The same breach of privacy, she contended, was common among classmates, whose "screens become the workspace of many," in particular when students "work in close proximity and confer frequently" about their assigned tasks (1st paragraph in the section, *Private/Public Space*).

Additionally, she noted that in the classrooms she taught most projection units and screens limited her teacher's agency as to the ways she could position herself in the classroom, often constraining her physical mobility within the classroom and forcing technology to come in between her and her students' communication zones. She also experienced classroom furniture to interfere with group work and group dynamics in her wireless labs, making it either difficult for her students to talk to each other when the tables were too wide or physically and emotionally uncomfortable when the tables were not wide enough.

Finally, she admitted noticing that wireless technology offered her students too many opportunities for distraction, which only augmented further her own struggle for student attention. Another challenge she mentioned in her report was *overconnection*. Meeks described it as, "too many convenient ways to interact with each other all the time—course webspaces, chat rooms, instant messaging, email, office hours," which she also believed affected negatively the "ethics of participation and contribution" within her classroom social space (1st paragraph of the section, *The Authority of Knocking on the Front Door).*

To conclude, as illustrated in this brief literature review, teacher control needs to be seen as affected by internal influences coming from the teacher him/herself and external influences coming from the institution, the student, the community, the physical context, or the technology itself. According to Foucault's (1980) theory of power, such an authority relationship places teachers at the intersection of the top-down and bottom-up forces where as individuals they are "simultaneously undergoing and exercising power [read control/authority for this study]. They are not only its inert or consenting target; they are always also the elements of its articulation" (p. 89).

Methodology

Research Design and Theoretical Framework

Since I was interested in teacher perspectives in this study and the meanings that they discovered technology had for them and for their students, I relied on a qualitative study design (Bogdan & Biklen, 1992) influenced by interpretive symbolic interactionism (Blumer, 1969). This theoretical framework allowed me to analyze teacher perspectives in the larger social and institutional milieu (Windschitl & Sahl, 2002) of a laptop technology initiative. The specific research question addressed was the following: What are the influences that shape English language arts (ELA) high school teachers' perspectives and attitudes toward technology in the laptop classroom?

As part of a larger research project (Jarzab, 2003), the study also explored teachers' beliefs about literacy and literacy pedagogy and teacher perceptions of themselves as teachers and technology users. The following research questions reflected these additional areas of interest to the study:

> What are ELA high school teachers' perceptions of themselves as teachers and technology users?
> What are ELA high school teachers' beliefs about literacy and laptop technology's influence on it?
> What are ELA high school teachers' beliefs about ELA pedagogy and laptop technology's role in it?

In answer to the first question, "What are the influences that shape ELA high school teachers' perspectives and attitudes toward technology in the laptop classroom?" the teachers reported loss of control as one of the most common challenges that laptop technology brought to their classrooms. This article attempts to uncover the influences that contributed to this challenge. Teachers' beliefs about literacy, ELA pedagogy, and teacher perceptions of themselves as teachers and technology users, the foci areas addressed by the remaining research questions in this larger study, are explored in incipient manuscripts (McGrail, 2004; 2006; 2007).

Setting

The research site for this study was a comprehensive public high school that was a part of a district composed of 50 square miles of suburban developments located northwest of a mid-sized city in the North. The school enrolled 2,760 students with mostly middle class and white ethnic backgrounds in grades 10 through 12 (according to the school website, 2003). Approximately 10 % of the student population was considered economically challenged and provided with free or reduced lunch. At the time of the study, the school employed 198 certified teachers; 195 White, 1 Black, and 2 American Indian.

Twenty-eight of the total number of teachers worked in the English department. The school offered an English gifted program, honors and college courses in English, as well as a Laptop Initiative (LI) for sophomores and juniors in math, social science, and English. In the academic years of 2000 and 2001, 425 11th-grade and over 510 10th-grade students and 12 (2 men and 10 women) of the 28 English teachers volunteered for the LI. All names in the present report are fictitious.

As the secondary English teachers with whom I worked on this research project informed me, the key agents in promoting the LI initiative were the superintendent and the community, who saw laptop technology as being progressive and looking to the future. They were also the key agents in organizing the technological tools for the teachers and students who volunteered to join the program, such as wireless IBM laptop computers, along with technical support and professional development. What is important to this study is the fact that both teachers and students had laptop machines on a lease basis, which meant that they had access to this technology for 24 hours a day, both at school and at home.

On average, a *laptop teacher* had from one to five laptop classes and from one to five non-laptop classes with varying numbers of students. For example, Jewel, an English teacher, had 3 10th-

grade English laptop classes and 3 11th-grade non-laptop writing and academic support classes with a total of 149 students. Eighty-three students, or 55. 7% of the total number, had laptop computers. The average size laptop class for Jewel was 27 students, and the average size for her non-laptop class was 21 students. Generally, laptop classes in this study tended to be larger than non-laptop classes, since there were many students who volunteered for the program but not so many teachers to serve them. For example, during the 2000 and 2001 academic years, there were approximately 35 laptop teachers to serve a population of 935 laptop students.

Participants

For this study, I chose only the English teachers who participated in the laptop program. These teachers shared not only the same field but also an interest in an intensive use of technology in their classrooms, both of which were focal points in this study. The degree of diversity among the selected members of teacher population was limited to some extent by practical constraints, such as a small pool of English teachers participating in the LI (12 out 28) and a small number of teachers interested in the study (6 teachers). The teachers who volunteered were Caucasian, reflecting the racial makeup of the English department at the research site. They varied in age, gender, teaching experience, and technological background.

More specifically, Jewel (age 40) and Colin (age 35) were from a younger generation of teachers than other participants. They had been teaching only for 2 and 5 years respectively. They had substantial technology background and because of that were not afraid to experiment with it in their classrooms. They had been using the laptops in their classrooms for 2 years at the time data were gathered.

Mark (age 54) and Pam (age 52) were experienced teachers. Both had no training in technology. They had been in the laptop program for less than a month at the beginning of the study.

Claire (age 54) and Joan (age 47) were both seasoned teachers. Where they differed was in technology backgrounds. Claire was new to technology whereas Joan had already had some technology training and, thus, was more willing to experiment with it in her classroom than Claire was. Claire was in her first year in the laptop program while Joan was in her second year when the study began.

Data Collection

Consistent with qualitative research design (Creswell, 1998), I used interviewing teachers as my primary source of data collection between Fall 2000 and Spring 2002. I also visited these teachers' classrooms for the duration of this study. I began interviewing these teachers with open-ended questions (Patton, 1990), asking them how they felt about laptop technology, what they did with it, why they did what they did, and that factors they thought contributed to their attitudes toward laptop technology.

It was during these early interviews that teacher control and authority issues around laptop technology emerged as a strong theme. Further probing into this topic in follow-up interviews allowed me to see it as a larger issue (Windschitl & Sahl, 2002). Like teachers in Bhave's (2002) and Meeks' (2004) research, the teachers in my study shared how they felt laptop technology challenged almost every aspect of their professional activity - classroom management, curriculum realization, interaction and communication with students, as well as the execution of the roles they chose for themselves and for their students. Probing questions such as these were asked to explore the afore-mentioned areas of challenge in the study: What is student behavior around technology in your classroom? What approaches do you take when students misbehave around technology? Do they work? How does technology influence your communication and interaction with your students? Are there any other influences within your classroom or school that might contribute to your sense of teacher control being somewhat compromised? What is their origin?

Upon termination of this study, I had completed ten 45-minute to 1-hour interviews and 18 visits (six visits each) with 3 teachers who used technology intensively, five 45-minute to 1-hour interviews and nine visits (three visits each) with 3 teachers who used technology intermittently, as well two retrospective interviews with each teacher by March 2002. While the interviews helped me to tease out a deeper understanding of the complex perspectives shared by individual teachers in my study, the observations enabled me to better understand the context in which the teachers were implementing new technologies, the kind of interactions in which they engaged relative to these technologies, and the types of challenges these technologies brought to these interactions.

An important observation needs to be made here about my classroom visits. Even though I collected field notes about the teachers' practices with laptop technology in their daily classroom practices, I used these data predominantly as reference materials to help me understand the teachers' meanings, generate further questions for interviews, and confirm both my initial and final speculations about the theory emerging from the interview data collected in this study. As such, the field notes were fewer than is typical and served primarily as cross-reference resources (Creswell, 1998). The field notes relevant to this report are of two types: a) my observations about individual teachers' classroom practices, to gain better understanding about individual teachers' pedagogies and the ways they implemented them in their classrooms, and b) an informal record of burning questions, instances of misbehavior, technical difficulties, and references to relevant literature.

Data Analysis

Data throughout this study were analyzed continuously; to derive open coding that consisted of the data categories that occurred regularly for individual teachers as well as axial coding that consisted of the data categories that occurred regularly across all teachers (Strauss & Corbin, 1998). As such, this analysis was a recursive and dynamic process, often leading from one unit of analysis to a larger unit of analysis (Bogdan & Biklen, 1992). For example, an analysis of instructional

engagements and the challenges laptop technology brought to their realization led to a discussion of the teacher as an important influence shaping the nature of teacher struggle over control and authority in this study. Personal dynamics such as teaching experience, technology expertise, age, and philosophical orientation began to emerge as defining influences on the teacher's interaction with technology in the classroom in this study. These influences affected greatly the ways in which the teachers in this study used technology in the classroom and the ways in which they handled the challenges it brought to their curriculum, classroom management, and pedagogy.

Table 1 provides an overview of the coding system for the theme of teacher control and its relevant categories in this study. For a discussion of the themes around the questions focused on teachers' beliefs about literacy, ELA pedagogy, and teacher perceptions of themselves as teachers and technology users, see incipient publications by the author (2004, 2006).

Table 1

Influences on Teacher Control and Their Related Categories

Influence	Related Categories
The Teacher	
	Personal Background:
	-teaching experience: novice/veteran teachers
	-technology expertise: novice/ experienced technology users
	Philosophical Orientation:
	-instructional practices: open-ended vs. structured activities
	-pedagogy: traditional/lockstep/worksheets vs. constructivist-interactive/student-centered
	Teacher Control and Classroom Management:
	-classroom environment & seating arrangement: inviting vs. limiting interaction
	-teacher location: static vs. moving around
	- teacher monitoring students' off task behavior: teacher-controlled vs. cooperative problem-solving
	-curriculum coverage: ahead vs. behind the curriculum
	-technology set up & other logistics
	-troubleshooting technical difficulties: alone vs. with students and/or others
Institutional Agendas	Conflicting Agendas:
	-standardized testing & technology mandates
	-laptop technology initiative: administrators' vision: "top-down," with

limited teacher involvement vs. teachers' vision: pedagogy before technology
-teachers' expectations as to the implementation: "stations/carts vs. laptops for every student," "time for professional development," reduced teaching loads,

Institutional Pressures:
-Administration, students, & parents want technology every time anywhere vs. teachers who want to have a say in as to when and how often to use it

The Student	Teachers' Views of Technology Use: -educational -instrumental: "retooling" -creative and inquiry-based (infrequent) Students' Views of Technology Use: -not educational, fun/toy -rooted in outside school experiences Conflict/Tension over Technology Use: -teachers' policing students' technology use vs. students' getting away with it -students protesting over Censor use (the Big Brother) -student misbehaving (e.g., staying off-task, not paying attention)

Limitations of this Study

Even though the study was designed to seek the teacher's perspective, it would have benefited greatly from hearing the students' voices as well. Student perceptions of the power/control dynamics between them and their teachers would have helped to better understand the reasons for their off-task behavior and/or recreational technology uses in the laptop program classroom.

Findings

Even though the teachers in the present analysis found technology beneficial to student learning in certain areas of language arts and they also experienced success in project-based lessons (for examples see McGrail, 2004), the same teachers found it to be challenging in areas of instruction such as classroom management, the curriculum realization, and communication, as illustrated in the opening quotations. The influences that contributed to the challenges in these areas for these teachers, particularly in regard to teacher control, are discussed below.

The Teacher

Technology integration in this study challenged every teacher's professional identity as well as the degree of control and authority that they wished for themselves in performing this identity. This was true whether it was a novice or an experienced teacher, someone who was technology-savvy or less-technology literate, and whether traditional or student-centered.

More specifically, Claire's teacher authority was compromised when she realized that technology began to take away her focus on teaching English in her classroom. On several occasions, she seemed to become too preoccupied with learning the technology herself and with learning to blend student learning with it in her classroom. She came to this conclusion only when she observed that this was happening in her colleagues' classrooms. Claire reflected upon this in an important insight: "A lot of my colleagues are spending time teaching kids how to do things instead of teaching English…. I want this to be an English classroom supported by the technology. Not a technology classroom where we do English."

Mark, in turn, felt his authority and leadership roles in the classroom were challenged when he realized that lack of technology expertise began to compromise "the edge" that he had developed over years of teaching, which he also believed had secured him a great deal of authority and classroom control in his professional activity. Pam, another more experienced teacher, perceived her inability to model technology uses to her students as an "assault" upon her otherwise strong knowledge authority and leadership status in her classroom.

Concerns around time management and the logistics of setting up technology in the classroom were other reasons for the teachers' perceived loss of control on a personal level. Consequently, they worried that instruction with laptop computers affected their control over the curriculum realization. For example, Joan noticed that she was "behind the curriculum" because, as she commented, "Anything like that [multimedia projects on the novel] is time consuming…. It

involves a lot of explanation on my part." Claire also pointed out, "Then, there's always the moving around." The logistics of setting up group work with laptop technology took a lot of teachers' time and energy, giving them little control over time management in this respect. She explained:

> If they didn't have the laptops, I would say, "Go find a group and sit there and do this." In
> 30 seconds, they would be ready to go. Now with the laptops, it's parting them… plugging it
> in and "You put yours here." And "I'll put mine here." That takes class time.

Teachers in this study also felt powerless when technical difficulties "interrupted class." For example, Jewel's experience of technical difficulties with the server—students could not log on—or the hardware—the computers kept freezing—left her feeling defeated. She concluded: "All I can do is send them down to the technology room and let the technology [people] fix it on their end. There is nothing I can do in the classroom." Claire recalled that her students were unable to "do an assignment because the machine wouldn't do it." She also felt hopeless when she could not get the scanner to work even though she had sought her colleagues' professional assistance in this matter. She lamented: "I could not get my documents to come out and look the way they needed to look… I took 45 minutes out of my planning time and ended up with nothing."

Another indicator of a compromised performance level for the group of experienced teachers was a re-emergence of classroom management issues. As these teachers reported, on many occasions, students' non-stop access to the wireless Internet in their classrooms was the cause of distraction, low-attention, and off-task behavior. This took the form of gaming or IM-ing [Instant messaging], on the students' part, while resulting in excessive preoccupation with technology management problems, on the teachers' part. This was especially true in situations when technology confronted them with a number of issues to attend to, such as "getting the kids up and running, getting them used to using the technology, dealing with the disparity. Kids that have an idea of using technology and those who have no idea," Claire explained. I too noticed off-task behaviors myself,

especially during extended periods of either teacher talk in teacher demonstrations or extended periods of student work on tasks such as composing an argumentative essay or working on a research report.

To illustrate, during one class, Colin instructed a group of students to work independently on their research projects. Immediately thereafter, he caught them playing video games on their laptop machines and not working on the assignment. As a result, he asked these students to shut down their laptops, put them aside, and to continue what they were working on by hand. I also observed Mark instruct his students to exit the sites they were not supposed to be viewing when they were reviewing an interactive site with Shakespeare's play *Macbeth* (1997/1623). Ultimately, such challenges compromised these teachers' perceived sense of authority and control in their classrooms.

For the novice teachers, on the other hand, learning to teach with laptop technology added yet another aspect of professional activity that they had to grapple with at the early stages of their professional careers. For example, Jewel reflected on how she felt technology added to her list of responsibilities: "One more thing to monitor with the kids, one more thing to have to check on, 'Is it working properly?' 'Are they doing what they should be doing the right way?' " which she believed, was "tough to keep track of." The troublesome part for Colin, however, was the issue of "the dead time," that is, "trying to get them engaged while they are loading up their computers." He was also trying to learn how to help his students regain interest in traditional texts, such as books or newspapers. He observed: "The linear book just doesn't appeal much to [students] anymore," and that, students "have less patience with things that are paper."

In conclusion, technology *per se* was not the only factor in contributing to teachers' struggles for control and authority in this study. The defining characteristics of these teachers' identities such as the degree of technology expertise and teaching experience played a role, too. Beyond internal

influences, there were also forces external to the teacher that contributed to these teachers' struggle over control in this study. They are discussed in the next two sections.

Institutional Agendas

There were a number of institutional influences both at the institutional and national levels that further attenuated these teachers' control and authority in their individual practices.

First, there was a conflict of agendas with regard to both national and state curriculum goals and technology integration mandates. On the one hand, these teachers were expected to prepare students for standardized testing, for which they were held accountable. As Pam commented, "The school district…wants to make sure that we're preparing kids to do well on an English Regent's because our scores are sent out to people in the community."

On the other hand, there was an institutional pressure for technology integration in their classroom practices. The laptop technology initiative was representative of this type of pressure, especially in situations when the teacher was forced to join the program to be able to continue to teach certain classes that were becoming part of the laptop program. Mark complained about this type of imposition on his teacher liberties: "I was, [told] that if I didn't, I might not be able to teach the advanced placement upper level students that I've taught for some time, and I didn't want to jeopardize that." Pam reported a similar situation: "I was told that the Advanced Placement class would be laptop class and I had to be trained."

What was even more disconcerting to the teachers in this study, however, was the fact that standardized exams did not allow for technology use at all. Pam explained: "Regent's exams are not written [on the computer]. It's all in paper." More importantly, they felt that the curriculum they were obliged to teach did not leave much room for new literacies, especially technology-afforded literacies (i.e., multimodal text composition, hypertext, online research) either. Pam pointed out, "We privilege in a classroom traditional literacies, reading, writing [print-based]." As a result, it was

not only the teachers who were caught in a disempowering dilemma about the curriculum and technology mandates, the students were also conflicted, and demanded an explanation when confronted with conflicting instruction. Colin reiterated his students' complaints: "Why are we doing this? I have this laptop. Why do I have a laptop if I have to write this thing out?"

Second, other institutional influences, such as heavy teaching loads, new responsibilities, and consequently, little time for professional development and learning also impacted these teachers' sense of control and authority. New complications, such as how to teach and troubleshoot technical problems associated with the laptop technology initiative, and with technology integration in their individual practices, reared these teachers' heads in the course of their daily professional activity.

The following excerpts spoke to these concerns. Claire: "How do I find time to create things and use things in my classroom when I am already working 55 or 60 hours a week to keep up with my workload?" Jewel: "I am behind in the curriculum" because, as she commented, "It takes me longer to teach something with the laptops…. Some student doesn't have it working…. It takes my time away from everybody else and I have to go work with that [student]." Mark also realized: "I don't get as much done because it takes 10 minutes at least for students to get set up. There is the inevitable, "Well, I can't use my battery." "I've only got 10% left."

The Student

Another operant force external to the teacher in this study was students and their expectations. Students were given 24-hour access to laptop technology. They could take laptops home, to the hallways, and cafeteria, because they owned them on a lease basis. They also wanted their teachers to use them more often. Mark shared how he felt this type of pressure from his students, who often inquired, "Are we going to use laptops today?" Claire admitted that because of this kind of pressure she sometimes used technology not because she needed to but because she knew her students would like to use it more often, since they were in the laptop program.

To meet her students' need in that area, Claire admitted to having used a strategy that she described as "retooling the assignment," so that her students could use technology when working on it. As she commented, "It's just something I'm doing to make sure they use the laptop." Word processing and note taking were at the top of her retooling assignment list. She confessed, however, that she was often conflicted about the value of such an approach, for she realized that some of the assignments that she had been doing on the laptop "could just as easily be done without the computers."

Based on my classroom observations, I noted that word processing, reading text off computer screens, creating outlines for novels or plays, and note taking were further examples of "retooling the assignment" in other teachers' classrooms. I did, however, see the same teachers engage students in more challenging technology-driven tasks, such as online research and multimedia projects. These projects, the teachers admitted, had lower classroom occurrence, because of the already packed curriculum and thus too little class time for complex, technology-intense projects. I also observed that in response to the "retooling the assignment" technology uses in their teachers' classrooms, students often resorted to computer games and Instant Messaging, which, as the teachers themselves admitted, became the biggest opponents in their struggles for classroom control in general, and in particular over student technology use in the learning process.

As a result, a conflict of interest between the teacher and the student emerged early in this study, challenging these teachers' control on still another level—the use of laptop technology for both education and recreation. On the one hand, teachers wanted students to use technology for educational purposes; on the other hand, students reverted to recreational technology uses, such as Instant Messaging and gaming, whenever they could get away with it. Jewel complained that in this struggle over laptop use in the classroom, the students engaged themselves in "a fun game," where

they tried to get away with what they wanted to be doing on the laptops while she was trying to impose her expectations as to the laptop use. She elaborated on this conflict of interests:

> Some of the students perceive the laptop as just something for them to do in the classroom other than the class work…. Whatever they're doing. They shouldn't be doing. Their perception is, "Hey, this is fun. I have this to chat so I can chat with my friend". . . and they put on a façade when the teacher walks by, "Hey, I'm using this the right way." And it's easy to see that they are not.

Joan, who experienced a similar trend in her interaction with the students, believed that it was hard to fight students in this game because the students had become so proficient in giving teachers false impressions of what they were doing. She commented: "The kids are so good at having something going on in the background while they look like they have the correct documents in front of them." Mark also spoke to this experience: "Getting them to log off is a much more difficult proposition than close your books because they can make it look like they've logged off and they really haven't."

The approaches these teachers chose for asserting somewhat compromised control in their classrooms, however, proved to be not always effective. More specifically, Jewel exercised her power to challenge students' non-compliance with the approved technology use in the classroom with the help of Censor, a central monitoring system, which allowed her to see all the students' screens on her computer screen. She explained to her students that she was going to use the system so that they knew that they could not "fool [her] and get away with not being monitored." Colin used the Censor system to monitor students' use of the computer in his classroom as well. When he noticed that some students were not where they were supposed to be, he took action. Colin reported: "I've had them shut down and then they can't participate."

Unlike Colin and Jewel, in exercising her power to monitor the students' use of technology in her classroom, Claire did not use the Censor system. She explained that she "caught a kid one

day" as she "walked by and saw him doing something that he was not supposed to be doing." She let the head of the department monitor the student and take action: "I emailed our head of the department… and gave him the kid's number and his password and… he caught him and sent him a message."

It was also problematic, because it often evoked negative feelings among the students and teachers alike. Jewel reported: "They hate it when I freeze their screen. They absolutely hate it. But I get their attention. They do look up." She also mentioned that during such a confrontation her students would sometimes "become defensive" and even talk back to her, "rolling of the eyes," as they protested, "I'm listening. I'm not playing with it. I'm doing my work." In Colin's classroom, I also observed instances of students' protesting at his capacity to monitor them with the Censor system. When probed about this conflict, Colin shared his students' concerns: "Why should teachers be allowed to see what we're doing or whatever?" "Isn't there such a thing as privacy and whatnot?" At the same time, Colin felt a strong need to use this tool to help him assert control over technology use in his classroom.

Thus, on one level, we can think of students' talking back as an effort to secure their control over the computer. On another level, such responses might be perceived as their effort to object to the teacher's close surveillance of their behavior. Claire, however, tied students' attempts to maintain control over the computer to their sense of computer ownership. She explained: "They don't like it when they can't navigate the way they want to . . . . They feel a sense of ownership of this device and they don't like it when we try to tell them what to do with it."

We cannot ascertain which explanation was true for the students because the focus of this study was not the student but the teacher. The fact remains, however, that the disciplinary approaches the teachers in this study used to regain control in their classrooms did not always work. In fact, as evidenced earlier in this report, these methods often proved to be counterproductive.

Several teachers in this study felt, however, that management problems and tensions around them might have been avoided if the students had not been given their own computers, which, as had been indicated earlier, proved to have been a source of distraction for the students and a source of struggle for many teachers. Instead, the teachers proposed an alternative solution. Mark spoke for himself and for other teachers as well,

> A number of us, amongst ourselves have talked about how it might be better to have a bank of computers. Twenty-five laptop computers on a cart so that when you had an activity for which you needed technology to instruct, you could bring the computers in for the kids and have them use them and then take them away.

Discussion and Implications

The influences that contributed to teachers' challenges to control in areas of classroom management, the curriculum realization, and communication in this study, and that also shaped their attitudes toward laptop technology in the classroom were the following: 1) internal influences, such as the teacher's teaching experience, technology expertise, or philosophical orientation and 2) external influences, such as institutional and national agendas, school policy, the curriculum, technology integration mandates, pressures from the community; and 3) students' expectations of, and practices with, technology in the classroom. Each of these influences played a role in these teachers' struggles for classroom control and authority. As their origin is explained below, the implications for policy and pedagogy are also discussed.

The Teacher

The study revealed that laptop technology brought challenges to all teachers (veteran and novice teachers, technology savvy and less technology literate teachers, female and male teachers) in areas of classroom management, the curriculum realization, and communication. Interestingly, technology-related challenges positioned veteran teachers in this study as novices in their own game

with regard to management in the technology rich classroom (Wepner & Tao, 2002). Years of classroom experience and tried-and-true techniques failed to shield these experienced educators from a sense of *greenness* that they had previously confronted when they were learning to teach. For the novice teachers, on the other hand, such difficulties only added to the challenge of becoming teachers at the early stages of their professional careers.

It is essential that policy makers, administrators, and in-service curriculum coordinators design professional development opportunities that will help all teachers to understand and to negotiate the many technological demands placed upon them in their individual teaching contexts. Such teacher professional development programs should incorporate discussion of and education in areas such as: a) technological competence; b) student motivation vis a vis the use of electronic technologies in the classroom; c) classroom management in a wireless environment, including topics such as power dynamics, surveillance, communication and interaction with and around technology, as well as netiquette, privacy, and intellectual property; d) pedagogy for technology integration as relevant to the English curriculum. This is because, as Bhave (2002) and Meeks (2004) observed in their research, wireless laptop technology materially transforms the classroom and student and teacher dynamics that calls for re-envisioning and renegotiating both the physical and social spaces in the classroom. Such spaces should encourage classroom participation and collaboration and minimize the opportunities for distraction, discomfort, or off-task behavior among technology users.

Institutional Agendas

The study also indicated institutional conflicts of agendas as further factors compromising these teachers' sense of control. One example of this conflictual imposition was the institution pushing for laptop technology integration and at the same time banning it in standardized testing, testing for which the teacher was constantly held accountable. Another such imposition was creating

new responsibilities associated with the laptop initiative, and then not reducing already heavy teaching loads.

O'Brien and Bauer (2005) argued that conflicts such as this are inevitable in institutions such as schools, because of the range of needs and expectations coming from other players, such as community, policy makers, and society at large. While such an explanation may sound plausible, I do not think it to be helpful to my teachers, as they struggled to maintain a modicum of control and authority over the curriculum goals in their laptop classrooms. To the contrary, I believe it definitely weakened their positions in these areas.

Looking at these contradictions from still another perspective, these latter forces might be seen as representative of an ongoing institutional conflict that continuously disempowers teachers' sense of professionalism. This conflict that I observe entails two competing mindsets within the school system, a conflict to which the teachers in this study were continually subjected. One mindset bestows upon the teacher the ultimate authority on matters of knowledge and learning (Lankshear & Knobel, 2003) and, consequently, the right to orchestrate his/her environment and pedagogy in ways to support this role. The other mindset constantly challenges and compromises the teacher's ability to fulfill this role, through policies, requirements, and expectations that make enactment of this role unrealistic, if not impossible.

The bottom line here is that by bestowing the teacher with power, and at the same time taking it away through countervailing authority, the teacher's agency to exercise power and control in the classroom is ultimately nullified. Struggles over control and authority that the teachers in this study shared in the context of yet another huge responsibility -- laptop implementation -- added to the onus of responsibilities and educational challenges with which they were burdened.

Recognition of such conflicting agendas calls however for the involvement of a larger number of stakeholders in its resolution. Such an involvement will likely bring to the table policy

makers, department chairs, and teachers, in an effort to examine and learn whether their influences through institutional policies and mandates tend to support, challenge, or bewilder the teacher in exercising his/her control and authority status in the classroom. Such a dialogue should result in implementing clear and non-conflicting curriculum goals and technology integration mandates, reducing the teachers' heavy teaching loads and at the same time providing them with release time for professional development, as well as securing additional monies for technology support staff who can assist teachers not only with troubleshooting technical problems but also with educating students about educational technology uses in a school setting.

The Student

Finally, the study suggested an emergence of a conflict in the use of technology between the teacher and the student. That is the teachers wanted students to use technology for educational purposes while students reverted to recreational technology uses, such as Instant Messaging, gaming, or the Internet surfing, whenever they could get away with it.

In order to understand the nature of this conflict of interests, I refer to Patterson's (1994) concept of schema, defined as "a mental framework the individual constructs from past experiences that helps make sense of a new situation" (p. 57). As discussed in this study, the dominant schema for the teacher of technology use in the classroom is structured around educational technology applications, such as word processing, Internet research, or note taking, among other things. However, the dominant schemata that students possess regarding technology use, based on their personal experiences with it outside the classroom, are focused predominantly on entertainment functions, such as social communication via the Internet, or play in games and simulations ("sims") in arcade galleries (Alvermann, 2002).

Thus, students' *misuse* of computer technology and software in this study might have been simply due to the fact that these students did not know better. That is because their personal

experiences with technology were primarily with applications that satisfied their pursuit of more engaging, interactive, and often less academic tasks in their private and social lives outside the school.

Yet another explanation for students' tendency to stay off task, playing games or Instant Messaging in this research, might be their rather jaundiced view of certain teachers' technology uses in the English classroom, a possibility that many teachers may have felt uncomfortable in acknowledging. Claire's descriptions of the retooling and other teachers' practice of this approach manifested in instrumental technology uses are not ideal technology adaptations for instruction. Such methods might have also proved to be less acceptable among their students, who had already tasted high levels of engagement and interactivity in playing games or Instant Messaging that these technologies afforded them. As such, the *retooling* approach might have well been another factor contributing to these teachers' compromised classroom control.

Additionally, the disciplinary approaches that these teachers chose to regain control and authority in their classrooms were not always effective and at times even problematic, resulting in tensions and compromised feelings on both the teacher's and the students' part.

In consonance with Glasser's (1986) classroom control theory, merely telling students what to do with technology will not suffice. Students have to take ownership in resolving these conflicts and teachers have to yield some of their power in allowing students to do so. Inspired by a humanistic teacher control theory, the balanced approach that I propose here, a *via media* (middle way) toward control and power dynamics within the classroom, will allow the teacher to retain enough control to be able to orchestrate the learning process and at the same time, to intervene when the need arises. By the same token, it will allow students to become "self-reliant," "self-regulatory," and "self-disciplined" (Froyen, 1993, p. 58) in their transactions with laptop technology, with their teachers or with their peers. Needless to say, for such learning to be educationally

effective, teachers will need to provide their students with the necessary scaffolding for it to take place. Without such pedagogy, students cannot and will not know how to optimally learn with this technology in the English classroom. Obviously, teachers will have to be provided with sufficient release time to develop effective classroom applications as well as scaffolding strategies that will teach their students such responsible use of technology in their learning in the classroom. Hopefully, such applications and strategies will cleverly *retool* recreational programs and technology tools themselves for powerful pedagogy, yielding a continuously engaged student body, adequately controlled classrooms, and professionally satisfied teachers.

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