ABSTRACT

CUPER, PRUDENCE HOBBIE. Novel Readings: Exploring the Effects of Technology-Enhanced Activities on Literature Engagement and Social Learning in A Middle School Setting. (Under the direction of Dr. Hiller A. Spires)

The purpose of this case study was to examine the effects of adding technology-based reading activities on adolescent learners' cognitive engagement with text and social learning. The informant group included an 8th grade reading/language arts teacher and five students selected purposively to represent diversity in the areas of gender, race, and reading interest/ability. Technology-based activities used in the study included an Internet research activity, a discussion forum, and a web site for literacy activities called *Literacy Junction* (www.ncsu.edu/literacyjunction).

The study parameters for assessing cognitive engagement with text were based on Corno and Mandinach's reading framework of *planning*, *connecting*, and *selecting* as the operative dynamics during engagement. Similarly, analysis of the findings was based on this model. In brief, findings suggest technology-based literacy activities can enhance: 1) pre-reading engagement with multiple perspectives on text-related social issues; 2) critical evaluation of information resources; 3) personal connections to text-related social issues that include written articulation of personal positions followed by dissemination of these positions to global (Web) audiences.

The constructs underlying the study's inquiry into technology and social learning were chiefly Vygotsky's *interpersonal* and *intrapersonal* learning modes. Findings suggest technology-based reading activities can abet interpersonal and intrapersonal learning largely through the dynamics of computer-mediated anonymity, virtual counterparts, and perceived audience. Regarding interpersonal learning, it was observed

technology-based activities facilitated collaborative or shared meaning-making, group-based critical evaluation of resources, and distributed expertise, all of which synergistically supported the processes of socially constructed knowledge. Regarding intrapersonal learning, technology-based activities permitted and fostered a unique means of safely exploring and negotiating personal identity, the central developmental issue during adolescence. Among several intrapersonal learning benefits from technology-based activities, the freedom to be more candid and to assume various identity guises was key.

With both cognitive engagement and social learning, findings indicate a significant potential in technology-based activities for liberating and harnessing student energies towards literacy ends, personal growth, and collaboratively derived knowledge.

Novel Readings: Exploring the Effects of Technology-Enhanced Activities on Literature Engagement and Social Learning in a Middle School Setting

by
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BIOGRAPHY

Prudence Hobbie Cuper (Pru) is the third daughter in a family of four girls and a native of New Jersey where she has lived most of her life. She is married and the mother of three grown children, a daughter and two sons. Pru earned a B.A. in Education from Centenary College in 1987, an M.Ed. from North Carolina State University in 1999, and a Ph.D. in Curriculum and Instruction from North Carolina State University in 2003. She was a Kenan Research Fellow during her doctoral work, with a concentration in literacy and technology.

Pru has served as a public school reading/language arts teacher, a middle school team leader, a research assistant, a graduate school instructor, and a college supervisor. She has developed both undergraduate and graduate curricula and course materials. She has presented papers at state, national, and international conferences in the areas of literacy and technology and curriculum integration, and has published articles and a book chapter in these areas as well. Pru is a member of the Phi Kappa Phi Honor Society, the International Reading Association, the National Middle School Association, the American Educational Research Association, and the Society of Children's Book Writers and Illustrators. She has conducted workshops on writing for young adults and on discourse analysis fundamentals for pre-service teachers.

Pru and her husband enjoy hiking, reading, and writing, as well as exploring exceptional bookstores (and coffee shops) during their travels together. Pru has a deep love of animals and children, a commitment to family, and a sustaining appreciation of the many, varied, and wonderful "characters" who have peopled her life.

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CHAPTER I: INTRODUCTION

Statement of the Problem

The hope in education today is that technology can work in the classroom. It seems to work everywhere else—we have instantaneous global communications, unprecedented computing power in offices and homes, applications that can handle virtually any need, and greater and greater productivity. So, policy makers, administrators, parents, and other interested parties feel technology should have more of an impact in education. How to do this has long been at issue, and today continues to provoke debate on approaches and funding. We are still at an intersection in respect to finding the right direction to take.

It is not unusual to have contentious deliberation at intersections, or to have institutional and social forces with the wherewithal to dominate the discourse or agenda. In education, government at the state and federal levels has a powerful voice; corporate America also does, as do parents in their roles as voters and taxpayers. Oftentimes what the government wants in education reflects what they are hearing from parents. The business world wants better-educated students coming into the workforce. Parents themselves want the best education for their children, and today their idea of a good education includes the use of technology. Government and business have the same idea, viewing an educated workforce as a competitive resource for military and economic reasons. Educational institutions, from universities to school districts, are in the spotlight as a result. Whereas technology pervades most people's lives in fundamental ways, it still has an insignificant presence and impact in America's schools.

My study addresses the issue of technology and education on two levels: on a general level, it establishes the context surrounding the question of integrating technology into the teaching and learning process; on a more specific level, it describes a controlled and targeted introduction of technology in one contemporary middle school reading classroom, including the findings and results from this introduction. Although the broader issue regarding technology's integration in education is important, it is beyond the scope of this study.

This study has pertinence for four groups of people—adolescents, reading teachers, literacy theorists/researchers, and education policy makers. I will focus on describing the participants who were part of this study, as well as briefly acknowledge the researchers who are beginning to shape educational thinking on technology. (A complete literature review is in Chapter 2.) In respect to the participant teacher and students, I will examine their respective interests, knowledge, and roles in this study. I will also note the role of policy makers since they are instrumental in influencing and shaping policy regarding technology in education. Finally, I would like to mention my study is written from the perspective of someone who has life experience in three of the four categories—as a former adolescent, a former middle school reading teacher, and presently as a literacy researcher.

This chapter concludes with the following topics: The Purpose of the Study; Framework for Review of Related Literature; Nature of the Study; and Significance and Limitations of the Study.

Adolescents

Research tells us that contemporary adolescents have an increasing *disinterest* in reading. It is most evident in the period when they are making the transition from elementary to middle school; during that time, their willingness to engage with literary texts is seen to lessen concomitantly as their interest in engaging with their peers increases (Farber, 1999; Guthrie, Alan & Rinehart, 1997). But while adolescents may not be as willing to give the same time to reading as they did in elementary school, they are on the other hand spending more and more time on the Internet—especially when they are at home (Doherty & Orlofsky, 2001; Baines, 2001). This time is spent, oftentimes, Instant Messaging with friends—many of them at once in an impressive display of multiple literacy acts. Not liter*ary* acts perhaps, but then again, as the adolescent assumes varying perspectives (Trotter, 2002) depending on which of her life roles she is playing (i.e., friend, girlfriend, chat room participant)—isn't she creating characters after all? And aren't these characters a means for her to try out the multiple sides of her personal

identity? The personal identity she is presently negotiating (Erikson, 1959), the personal identity she is highly motivated to explore?

The literacy acts involved in electronic communication may have another dimension besides the use of language. I believe a good argument can be made that students are in a sense creating characters—doubles of themselves, almost in the sense of the German literary device of the *doppelgänger*—when they communicate in relative anonymity and a form of social obscurity. It can be asked—in fact, it has been asked as will be seen—whether this form of communication not only enables them to try out the multiple sides of their personal identities but also encourages the process.

Classroom Reading Teachers

Based on their training and on their day-to-day experiences with students, classroom reading teachers have a grounded perspective on what the sharing of literature can and cannot afford adolescent learners. They have seen it all—the motivated moments when discussions of literature are animated and wide-ranging, temporarily nullifying the cliques and cultural differences, the need to appear "cool" with peers (Almasi, 1995; Gambrell & Almasi, 1997), as well as the times when students' attention, interest, and motivation is impossible to stir.

As noted, teachers are especially challenged to keep adolescents interested in reading. Additionally, they are challenged to ensure that reading activities—such as discussions of literature—accommodate other classroom needs, chiefly those involving social and personal-growth dynamics. And finally, reading teachers today face what can be called the imperative to integrate technology into their practice. We are past the question of what to do with the PC in the classroom. With more and more Internet connections available each year in schools, reading teachers (and teachers in all subject areas) are being directed to develop meaningful ways to include technology in their teaching (Roblyer & Edwards, 2000; Leu, 2000). Government and society are the prime movers. Across most of the US, for example, state curriculum standards include a statement of the goals and objectives of applying technology in the classroom. However,

the day-to-day decisions and implementation strategies remain in the hands of teachers (Harris, 2001).

Considering the amount of multi-tasking performed by a teacher in the course of a "normal" day, it is not surprising a recent US Department of Education survey (1999) found that 80% of K-12 teachers feel they are not capable of using technology in their classrooms from the standpoint of time and readiness. It is just another responsibility for them among the many others they already have. Additionally, the bigger problem for them is the lack of a "game plan" for its integration and use. The most common question from reading teachers is likely to be: What, exactly, are we supposed to *do* with these new technologies? What do we use as a model; what guidelines do we follow? Most research studies indicate the reason for these questions is simply that technology-enriched literature activities are not as commonplace and available as their counterpart activities in other subject areas such as social studies and science (Follansbee, Hughes, Pisha & Stahl, 1997). Leu (2000) cites a few literature-related classroom examples and calls to those classroom teachers who are presently experimenting with ways to use technology to share their experiences with their colleagues. "Even if you are just getting started, you have important information to share with others . . . " (p. 427). But the challenge may be for these pioneering teacher-researchers to find the time to share what they are about. They are presently struggling to accommodate the needs of their increasingly diverse classrooms and to simultaneously find ways to prepare their students for rigorous, end-of-year assessment tests, tests that affect teachers' plans and practice in far-reaching, yet not always positive ways (Nieto, 2000; Au, 1993). As a result, the situation by and large remains the same—there are few resources for teachers to go to.

Literacy Theorists and Researchers

Literacy theorists and researchers have been at their business for over a century. Through an aggregate of approaches—approaches that from time to time have run counter to each other (Routman, 1996; Beach, 1993)—they have collectively determined that a literature component is essential to middle school reading instruction (Durkin, 1990; Menke & Pressley, 1994; Gambrell & Almasi, 1997). The consensus is that

students should be given opportunities to read culturally rich texts—called authentic texts, too, but essentially referring to a diverse array of reading matter—the rationale being this type of literature offers adolescents a powerful means of making sense of and dealing with the personal and social transitions they are going through, especially the acute need for peer acceptance characteristic of this age (Biehler & Snowman, 1993).

Rosenblatt (1995), one of the earliest literacy theorists, has persuasively argued in her research that reading and sharing of one's thoughts can help adolescents frame an understanding of this need for acceptance, and the related need to feel a sense of commonality with peers. She explains that through classroom literature discussions, and through the dynamic of identifying with the experiences of literary characters, commonalties can not only be found by adolescents, but the process can help them to accept facets of their own identities as well as to socially ground them. Reading and discussing what they read helps them understand that they share things in common with the characters in the literature, and with society as a whole. Rosenblatt defines this dynamic as *emotional parallelism*—to her, "the means by which the youth [through literature] discovers that his inner life reflects a common experience of others in his society" (p. 194). In a similar vein, Beers and Probst (1998) describe the communal nature of the reading act in the classroom as a way "to find what we share with the person behind the text, or the person created by the text, or the person with whom we discuss it. [We thereby] identify the common pains and pleasures, hopes and fears, so that we may see that we are [all] alike" (p.18).

We are in a period of growing diversity in America. Increasingly, teachers are working with more and more ethnically heterogeneous student populations. Cultural differences, language differences, add a little more difficulty to the teaching task. Yet, the central issue and opportunity for reading teachers remain the same. If they are to give each learner equal opportunities for learning and advancement, as well as for social acculturation—teachers must help students make the kinds of personal and social connections through literature that literacy theorists describe.

The Internet may be a significant agent in that regard. A number of reading researchers cite the Internet as a technological resource with the potential for vastly facilitating such human connections, both in the classroom and outside of it as well (Mahiri, 2000; Garner & Gillingham, 1998; Leu, 2000).

Education Policy Makers

One of the major concerns for local, state, and national policy makers in education is the issue of improving literacy achievement (Olson, 2002; McNabb, 2001). The goal is not only better-educated children, it is also more competitively educated children. In this context, technology is being viewed by policy makers as the perfect means to get nearer to the goal, or at the very least to put in place a technology-based pedagogical infrastructure to ensure more consistent educational quality, delivery, and results. This is why, as McNabb (2001) explains, "public policy initiatives around the world show a movement toward raising literacy achievement through efforts to infuse information and communication technologies" (p. 48).

The efforts of policy makers are particularly visible in this country with the recently passed revision to the Elementary and Secondary Education Act (ESEA). This act sets state-specified goals for reading achievement and warns of “serious consequences” for schools that do not reach them (Olson, 2002). More to the point, of the 26.5 billion federal dollars the ESEA authorized for elementary and secondary education, a substantial portion of the funding was earmarked for increasing the use of technology in American classrooms (*Reading Today,* 2002).

Education policy makers must decide how this money should be spent to achieve the goals of the ESEA. Again, given that the main issues regarding the integration of technology into the formal learning process are still unresolved, there will naturally continue to be a debate as to how to apply the funds. The big issues are pretty clear. For starters, there is a body of recent research that has identified some of the main fault lines in this area. Data from Market Data Research (MDR), for example, shows that school spending on technology was close to 5.7 billion dollars in 2000, with a 5-1 ratio of students to computers in the average American classroom (*Reading Today,* 2002). One

need is to put more computers in the classroom. The MDR findings also highlight a problem considerably more difficult to address and "fix" than filling classrooms with computers, namely, that "all of the nation's schools—whether rich or poor in technological resources—need to focus more attention on how to use their existing technology effectively in the classroom" (Doherty & Orlofsky, 2001, p. 45). This problem has been around for 10 to 15 years, and it is quite a bit more intractable because it is far more complex. Purchasing the equipment and outfitting the classrooms is a start, but there is also the unmet need, as Doherty and Orlofsky (2001) explain, to "do a better job of addressing the human factors such as training teachers and figuring out how technology fits within the standards movement" (p. 54). There are other issues as well.

From my own experience, I cannot recall a single classroom visit made by an education policy maker in the 10 years I taught in public schools. Yet, I do recall every teacher in the schools where I worked being very aware of this group's expectations regarding educational results. They were publicized in one way or another through board meetings, PTA meetings, administration directives, newspapers, professional publications, and news of legislative proceedings and bills. Teachers could not but help feel the pressure.

Summary

Reading teachers continue to face the traditional challenges in teaching reading and improving literacy. The most important one today clearly is how to counter the trend of adolescents growing increasingly less motivated to read literature, opting instead to spend their discretionary hours chatting on the Internet (Tapscott, 1999; Doherty & Orlofsky, 2001). At the same time, teachers are aware of the hue and cry from education policy makers—among others—for more technology-enhanced instruction as a means of raising literacy achievement (Olson, 2002; McNabb, 2001). Lastly, they are already overtaxed for time with what they currently have as their responsibilities; consequently, the movement to incorporate technology into literature instruction, as well as the lack of guidance regarding how to do this (Leu, 2000), creates a challenging environment for them.

The good news is that literacy theorists and researchers (Mahiri, 2000; Garner & Gillingham, 1998; Leu, 2000) not only believe in the pedagogical benefits of connecting adolescents with meaningful literature, but are more and more convinced that the utilization of technology to enhance reading experiences is an essential and unique means of accomplishing this goal. They are studying how to translate their conviction into guidelines and practical models.

In short, technology is here and one day will forward the learning process in schools (Asselin, 2001, Means, 2001). It will take time for that to happen meaningfully and on any widespread basis. And it may occur in small steps. With this perspective in mind, and based on firsthand experience, I am convinced of the value of using technology in the classroom, especially in my field, literacy learning. I am also convinced there is a need for more research into what happens academically and socially when middle school reading teachers *do* include technology-enhanced activities in their literature instruction. I undertook this case study to determine what happens for myself. My study involves a veteran middle school reading teacher and five of her students using technology-based activities with the reading of the young adult novel, *Holes* (Sachar, 1999).

Purpose of the Study

The purpose of my study was to examine the effects of using technology-enhanced learning activities in an adolescent reading class. Two learner areas were of primary interest: cognitive engagement with text and social growth. The technology tools used in the study included an interactive literacy web site, a teacher-designed Web Quest, and a commercial Internet discussion forum.

Cognitive Engagement with Text

In the first learner area, I explored the effects of adding technology-enhanced activities on students' cognitive engagement with literature. My analysis of the levels of text engagement was based on Corno and Mandinach's (1983) schema of student and teacher perceptions of the critical thinking involved in text engagement. This type of thinking involves: 1) setting a purpose for reading (*planning*); 2) connecting reading to

prior life experiences (*connectivity*); and 3) focusing on relevant topics during reading and demonstrating comprehension of the story line (*selectivity*).

Social Growth and Learning

In the second learner area, I examined how classroom dynamics and social learning in general were affected when technology-enhanced activities were added. My approach was to analyze the perceptions of five students' in terms of how they thought their roles in the classroom changed (that is, the impact, if any, on interactions with their peers and with their teacher) when their lessons included interactive Web activities. I also examined the teacher's perception of the effects on social learning of adding these activities. I was particularly interested in seeing whether there was any effect on levels of interpretive authority and on patterns of classroom discourse—essentially, on the social hierarchy and dynamics—both among the students and between the students and the teacher. In current research, this is a salient area of study.

Specifically, the following research questions informed the direction of my study:

- How does the addition of technology-enhanced activities affect adolescent reading instruction?
    - What are the effects on cognitive engagement with text, particularly *planning* for reading; *connecting* reading to prior knowledge and experience; and *selecting* relevant material from minor details?
    - What are the effects on the social learning – both *interpersonal* and *intrapersonal* learning – that occurs in the classroom setting?

Framework for Review of Related Literature

The framework for the literature review for this study is organized into three categories—*The Changing Literacy Environment*, *Theories of Reading and Adolescence*, and *Snapshots of Contemporary Literature and Learning.* Respectively, the broad subject flow is as follows: 1) newly developing theories of literacy and technology; 2) more firmly established or "middle range theories" (Merriam, 1988) of reader response and adolescent learning; and 3) contemporary classroom examples. This approach is intentional. It provides a means of presenting what Eisner (1998) describes as a

"combined review of theory and practitioner voice." During the course of my review, I interweave my own experiences, analysis, and conclusions. An abstract of each category follows.

In *The Changing Literacy Environment,* I examine current perspectives on literacy learning in the 21st century with particular attention to the impact computer technology has had on classroom teachers. I include a discussion of "multiliteracies" (New London Group, 1996), discourse and communication options available to adolescents that cross the boundaries of school, home, and community. These new multiliteracies, these "New Times" (Elkins & Luke, 1999), are viewed as calling for and simultaneously allowing for the development of critical thinking, reading, and social skills on the part of students, and on the part of teachers as well (as integral members of the process). I close *The Changing Literacy Environment* with a review of what are seen as the most effective instructional technology tools and methods for literacy learning available today (Means, 2001; Asselin, 2001; Harris, 2001). I include this review for two reasons: 1) to present the current options available to teachers; and, 2) to explain features of the Web instruments used in the study.

Theories of Reading and Adolescence, the second category in the literature review, summarizes some of the seminal theories of reader response and adolescent development—the "what we know" about reading and the adolescent learner. I open with a brief discussion of what Dewey contributes to shaping contemporary views of adolescent learning, proceed to an overview of transactional theory, and follow with a synopsis of theories of cognitive engagement with text. I close with a discussion of the nature of the adolescent learner, with particular attention to the social learning that transpires in school.

The research literature in the first two categories (*The Changing Literacy Environment* and *Theories of Reading and Adolescence*) is more theoretical in nature in terms of its sallies into literacy and social learning. The literature in the final category, *Snapshots of Contemporary Literature and Learning,* strikes a balance between highly theoretical discussions and data obtained from actual classroom studies. As this body of

research is extensive, I focus on findings from two case studies that are closely related to the questions underlying my study. The first study concerns text engagement and classroom interactions that do *not* include the use of new technologies as a means of promoting adolescent discussion of literature; the second study involves the use of electronic chatrooms (synchronous discussion forums).

Nature of the Study

This is a qualitative multi-case study that was conducted with an 8th grade reading class in a rural North Carolina middle school. I assumed the role of participant observer. The sampling for my study was purposeful. The teacher, Lorraine Hampton (a pseudonym), has over twenty years of classroom experience. She invites new approaches to teaching and learning, and describes herself as not being intimidated by new technologies. She also admits to not being too knowledgeable about them. Lorraine is presently enrolled in graduate school where she is pursuing a master's degree in English language arts instruction.

I asked Lorraine to be a participant because I already knew her and realized her personality and attitude were ideal for what I was looking for in a study partner. She was very eager to take part in my research, too, which was an important consideration for me. I also chose her to see how a contemporary of mine—that is, a teacher who started her teaching career before the arrival of computers in the classroom—has gone about integrating technology into her established teaching routines. I was at the same time interested in seeing how her teaching style and her interactions with the students were affected by technology, and whether or not she viewed new technologies as being helpful to her as a reading teacher.

In keeping with the intent of purposeful sampling, I asked Lorraine to choose the five student participants for the study. She agreed to select a mix of males and females, as well as a cross-section from the following categories:

- Levels of interest in reading
- Reading ability
- Cultural background

- Socioeconomic background

This diversity in the participants' academic, social, and cultural make-up was a study characteristic expressly chosen so that a broader and more deeply layered analysis of the findings could be made. I was influenced in this regard after having read a classroom study conducted by Lewis (2001), who examined adolescent literary practices in the contemporary classroom with particular focus on these practices as social acts. (Technology-enhanced activities were not included in the study.) Lewis' study had a very influential effect on my own approach and thinking in a number of ways. In this case, her study convinced me of the need for social diversity in my study. I reasoned that the richer it was in respect to the participants' backgrounds and abilities, the richer would be the possibilities for exploration and interpretation, and the more balanced the findings.

To provide a measure of triangulation, I used a number of methods for collecting my data. They included pre and post-study interviews with Lorraine and the five student participants; audio-tape recordings of the interview sessions; field notes of the daily classroom interactions; student-generated Web products (that is, material written using Web resources); a daily journal Lorraine kept throughout the study; and, finally, my own researcher journal. I conducted member checks with Lorraine and the students during the study to help ensure internal validity and to provide an ongoing emic (insider) perspective.

Significance and Limitations of the Study

As I have noted, there is at present very little research literature on the effects of using technology to aid in adolescent literacy instruction (Leu, 2000). The few studies that deal with this topic mostly fall into the category of content area reading, with social studies or science topics as the focus. Other studies I have found deal largely with email partners and/or Internet research projects (such as Web Quests). Given that my study focuses exclusively on the effect of integrating technologies into literacy lessons, it is among the few out there in the current research field and can be viewed as breaking new ground.

Studies are needed. It is highly probable that reading and literature instruction will change in our lifetimes as new or better ways for presenting and distributing texts, and more formats—such as interactive multimedia presentation, to name just one—are produced for schools, and as new ways for measuring the efficacy of the reception and comprehension of literary content is available in classrooms. Students will have ahead of them novel and varied formats and devices for experiencing the "reading act," with much broader (possibly even customized) opportunities to choose how they will read and react/respond to what they have read (Labbo & Reinking, 1999; Reinking, 1998; Bruce, 1997). But, having said that, how exactly technology, such as the Internet itself, will be applied to literature instruction, to learning, is unknown at this point.

My study is a qualitative inquiry into the effects technology-enhanced literature instruction had on one group of 8th grade students and their teacher in the year 2002. There are two broad points to be made about it: first, my findings are certainly new and certainly useful as preliminary data for further research, yet they will become dated within only a few years. This is an accidental limitation. Secondly, in keeping with the tradition of qualitative research, the intent of the study was not generalization of conclusions. This is an intentional limitation. Every classroom setting is unique in composition and every teacher's approach to teaching literature is as unique. The findings from this study are not meant to be used as a predictor or model for future classroom practice. This study is best appreciated as a contemporary story based on a thick description (Geertz, 1973) of one class' experience with technology at a certain point in time, being mindful (too) of the state of the technology's "implementability" in the classroom at the time. I appreciate and refer to Sumara's (1993) point regarding qualitative research as being dedicated to the need to understand the truth of the particular in order to understand the whole. At the same time, it must be recognized that when qualitative research involves examining the use of new technologies, the validity of the particular will likely be short-lived.

Nonetheless, I believe that an in-depth record of how teachers and students made their way through the "uncharted waters" of applying and using technology in the

classroom is of crucial evolutionary value. As policy makers fund classroom technologies in the decades ahead, as literacy researchers develop theories regarding best technology-enhanced practices, and as software and hardware developers design educational products for the future, they must all be aware of what, over time, teachers and students were drawn to and what they resisted as well, what proved to be effective in the field and what did not. Better technology can be designed and more effective classroom practices introduced if they are grounded in experience, and that experience is recorded. This study is a record of one such experience.

"Technology" Terms Used in this Study

The term "technology" in this study encompasses computer and network technology in general, that is, the technologies that enable electronic communications, multimedia-based interactivity, and the Internet. Terms such as the Internet, the Web, and "online" are used interchangeably even though there are distinctions among them in respect to what they are and what they mean. "Computer-mediated" simply means an activity or communication or effect that is done through technology.

CHAPTER II: REVIEW OF RELATED LITERATURE

The Changing Literacy Environment

The broad context for my study is the current trend in the US of trying to incorporate technology into the classroom; the specific "micro-context" is one middle school classroom where a small group of students are participants in an attempt to see what effect the use of certain technology resources has on literacy learning and social growth. Stake (1995) states that the researcher's lived experience is a key element of case-study methodology, and suggests that the researcher's life story should be part of the research narrative. As a result, I start this narrative by sharing my own experience as it relates to the arrival of computers in the classroom, including the problems and issues I encountered. I then follow with a review of current research regarding the impact of new technologies on literacy instruction, particularly the socio-technological implications of that impact. I examine this body of research through the lens of social constructivism, a perspective I find illuminating. I close with a review of both theoretical and empirical research regarding the most effective technology-enhanced instructional features available to teachers today.

Computers in Our Classrooms—My Story

I began my classroom career in 1987. I would have to say that it took me about three years to begin to master the complicated business of being a middle school teacher. I put in my time as a rookie, did all of the things rookies do—made mistakes from over-eagerness and lack of experience, felt disappointment from unrealistic expectations, and so on. This was also a period during which I experimented with classroom management styles, tried different ways to communicate with my students, and worked on calibrating my authority so that everyone in the room knew I meant business without resorting to instilling fear. I was a learner myself in a sense. By the end of the third year, I felt I was a good teacher, good in the best sense that I know of, namely, I was considerate and effective. I also felt highly rewarded personally. My students were learning, they were excited most of the time, and they knew that I cared. Test results were improving year-by-year, the educational "bottom-line," so to speak. The upshot is that I felt my students

were learning and motivated, and that they and I had achieved sort of a perfect teacher-student symbiosis. Then, just as I thought I had everything "down"—my routines, practices, and expectations—the principal of the school wheeled in a set of computers into the classroom. Start using technology was the vague directive—it is important! Of course, it was not that abrupt, but the effect of this "little" event was in a way. Without too much advance notice, or time for preparation, or anyone's sensitivity to my workload, I was expected to be able to "integrate technology." What did that mean?

Integrating technology is a complex endeavor, with a number of issues. Two of the main issues relate to access and to purposeful utilization. The first one has to do with the "digital divide" (Tapscott, 1998). This "divide" is due to the district-by-district ability (or inability) to fund the introduction of computer equipment into school classrooms. The divide separates one district from another in that regard, and results in a condition of inequity for schools and students who do not have access to a powerful new learning tool. It was among the foremost issues relating to the initial introduction of technology. Today, the divide in access to classroom computers has significantly narrowed (Reid, 2001).

The second main issue regards purposeful utilization, or knowing how to use the technology. As Jeffers of the Institute of Children and Technology explains, "it's not simply a matter of getting people's hands on technology. In a sense that's the easy part" (cited in Reid, 2001, p. 16). The real problem according to him concerns how computers were to be used once they were purchased and installed in the classrooms. It also became apparent in the initial period that there was a glaring lack of training, guidelines, and models for teachers to use. The result was that many computers were simply used as "babysitters" (p.17), rather than as what they were meant and promised to be, namely, tools to enhance and advance learning.

In the case of my own experience, purposeful utilization was the key issue my colleagues and I encountered (again, around 1990). For us, the issue encompassed everything from basic questions such as how to use the equipment (for example, how to start the computer, how to print a file, and so on) to more critical ones such as how to use it for teaching. What we experienced corroborates what Reid (2001) maintains is a

continuing dilemma for teachers today, namely, the intelligent and organized utilization of technology resources. In fact, not only did we have no idea of what to do with the computers once they were out of their boxes, we could not even figure out where to house them. Should they be installed in a separate lab, quarantined like an "invading virus" (Papert, 1996) so they would not contaminate the traditional learning environment? Should they go into every classroom? Do we have enough outlets? We have only one printer—who gets it? And so on. But the most crucial question (and it took a while for it to emerge as such) was this: how were we to integrate this technology into the established curriculum? Into our lesson plans, our routines? What was it supposed to help? How? Would the use of technology somehow improve our students' scores on yearly, standardized assessment tests? Was there any research pointing to improved learning in technology-enhanced environments? Who would train us, and—this next issue also took some familiarity with the equipment to realize it was going to be a chronic problem—*who* would handle the technical problems that occurred so frequently? Consequently, struggling as we were to keep up with our regular responsibilities, and struggling with attempting to assimilate the technology into our practices—operating in an experiential vacuum as we were—we eventually began to question whether infusing it into our teaching was worth the effort. We became disenchanted with what at first was, very briefly, novel and promising.

Wallace (1999) argues that the problems and issues surrounding the integration of computer technology should not have been unexpected. There is a history of similar problems with attempts to introduce groundbreaking technologies into the mainstream. The printing press, the steam engine, and the assembly-line production process of the Model T Ford, for example, were in their day unprecedented incursions into the standard practices of certain craft and industrial sectors, threatening to workers, upsetting of traditions, of order, scale, and familiar patterns. In short, the technologies were forces that put in motion fundamental and, to many, alarming changes in society. They affected employment practices and production in a world used to manual, hand-craft labor, to the processes and protection inherent in guilds, and to social valuation based on the rules and

hierarchy going back to the medieval ages or pioneering days. In place of the familiar, the new technologies substituted devices and machinery in the production and distribution of things, affecting commercial relationships, social patterns, and self-regard accordingly.

In her study of the impact of infusing new technologies into existing societal structures, Wallace (1999) refers to Marx's construct of *technological determinism* in her argument that "new technologies have incredible power to shape human behavior and social structures" (p. 13). In other words, technology has the power to define the economic practices, societal characteristics, and wealth distribution of an age. Viewing this phenomenon from a different angle, Heilbroner (1967) describes technological determinism as "a problem of certain historical epochs in which the forces of technical change have been unleashed, but when the agencies for the control or guidance of technology are still rudimentary" (p. 335). Looking back at the arrival of computers in my school, I would say that both senses of technological determinism (Marx's and Heilbroner's) were operative. On the one hand, I could "feel" this technology might force my colleagues and myself to alter our traditional practice, as well as re-shape our views of what classroom structure should be. There were certainly periods when it seemed we would have to adjust everything to do with our profession—from our conceptions of education to how we prepared and delivered our lessons—often coinciding with how prominent technology was on society's radar at the time. At the same time, it also proved to be the case that there was—to use Heilbroner's terms—only a rudimentary level of support, control, and guidance to help us manage the transition from traditional teaching to technology-based teaching.

The problem of how to make use of our computers was compounded by the fact that technology seemed to change and grow more complex as soon as we felt we had any understanding of it. (This was perhaps more perception than reality given how changes in computer technology occur rather incrementally; however, the key point here is that our assimilation of it at the time involved viewing it as in fact fixed and stable, or a one-time learning experience for us.) Leu (2000) describes this perception as arising from the "diectic nature of technology," comparing the changeability of new technologies to the

linguistic concept of diexis—words like “here” or “today” that carry temporal reference. In other words, technology’s particular forms and our comprehension are local and transient, and both have short-lived currency before technology changes again and requires new comprehension.

What was the effect on us? Erikson (1968) describes adolescence as a time of “stepping from what is known into what is unknown.” When I first encountered these words, I remember feeling they not only described the social and individual metamorphoses going on in our classrooms, but the teacher’s situation as well. We, too, it seemed faced going from one state to another, from the conditioning of one experiential phase to the next. Taken together, the challenge of working with students who themselves were undergoing a “seismic” change in their lives while simultaneously trying to understand and cope with technology—itself capable of changing states—was at times not only confusing and frustrating, but disorienting.

There is recent thinking that is helpful in dealing with the problem. Labbo and Reinking (1999), for example, view the pairing of literacy and technology against the backdrop of what they call the “multiple realities” of the technology-enhanced classroom. They counsel that examining literacy learning and technology solely as a *topic* rather than as a *reality* of the modern classroom environment "belies the breadth of literacy issues affected by new technologies . . . its increasing influence in daily literate activities" (p. 479). If teachers only view technology in this manner—narrowly, in the researchers’ opinion— Labbo and Reinking warn of a tendency to become trapped in a dualistic view of technology's effect on the learner, looking at it as either a "straw man or a standard bearer" (p. 480). They argue that the use of technology is, in fact, simply one reality among many of the literacy experiences available to students today. In many cases, students—traditionally more capable of adapting to new terrain—accept this reality and can work with it much more readily than their teachers (Tapscott, 1998). Among the frameworks or strategies educators must develop for dealing with this new classroom "reality," one of them must definitely be directed toward those teachers for whom the “reality” is more difficult to assimilate. Students, on the other hand, have in many cases

grown up with computers, if not at home, then at school (Trotter, 2002). Many have "hands-on" experience with them and live in a home climate where the technology has become integral to communication, work, and entertainment. Given that, and given the adaptability of the young, it is easier for students to accept and use technology in the school environment (Roblyer & Edwards, 2000).

Latour (1991) posits that the technology/society divide is deepened when we assume a single stance or position toward technology use. It is far more beneficial, according to Latour, to understand and accept that technology is simply a modern-day reality. This notion echoes the views of Labbo and Reinking (1999), and Bruce (1997). These stances, according to him, are not actively initiated or preconceived, but rather are adopted naturally based on contextual factors and on the backgrounds of those confronted by the technologies. The stances range from *neutrality* (no apparent stance), to *opposition* (resistance to technology integration), to *utilitarian* (technology as a tool), to *skeptical* (show me how technology makes a difference), to *transformational* (technology will transform the definition of literacy), to *aesthetic* (technology affords opportunities for artistic creativity). Bruce recommends that we move within and among the stances, especially as we grow more comfortable with new technologies, and try to avoid becoming self-entrenched in any one stance.

In general, researchers are saying that for educators the reality is more readily assimilated if they can be flexible in terms of modifying their stances. What the researchers mean is that the reality of technology—in all of its manifestations—is at bottom a set of tools and resources predominantly employed in communication and potentially employable in learning. Furthermore, whether conducting research on the Web, playing multimedia games, joining and participating in chatrooms, communicating through email, or preparing a PowerPoint presentation, students are in fact involved in literacy acts through these new technologies. Technologies can inherently serve literacy purposes.

Reading and cognitive theorists similarly view what takes place in the technology-enhanced classroom, such as the personal decision-making and social interactions

involved, as good literacy learning opportunities (Beach, 1993). Even Dewey's (1938) concept of functionalism, for example, has remarkable application today to the educational use of the Internet. His core belief was that the field of education needed to relate classroom learning to a child's world beyond the school in authentic and useful ways. The Internet is a classic opportunity and means to establish that relationship. And from another perspective, one of the more intriguing features of technology-enhanced classroom learning is perhaps the fact that learning activities that make use of the Web inherently sanction and require collaboration. Papert (1996) views this phenomenon as a new culture or mode of learning, one in which the student is encouraged to learn through interacting with "distant" others. In computer-mediated communication, students are presented with multiple learning options that also call for interacting with their peers, not only those they know, but also those they encounter through school-approved Internet learning activities (Beach & Lundell, 1998). In this case, the medium is not the message; but it is the joy and stimulation of what is simultaneously a personal and a collaborative effort that involves contact and learning. Chatrooms, NetForums, email communication, and Instant Messaging are all examples of the computer-mediated communication resources that Beach and Lundell (1998) address in their discussion of collaborative electronic learning.

Parents, too, can be helpful in this "mission" thanks to the increased use of email, as well as the development of school Web pages where they can easily access class notes and homework assignments. What this new form of interaction establishes, almost as a by-product, is a closer connection between school and home for many students and parents (Tapscott, 1999).

Socio-Technical Considerations and Identity Formation

As early as 1991, Hawisher and Selfe examined the empowering nature of electronic communication in the writing classroom, the "empowerment" a curious result of what can be characterized as the "disembodying" effect of participating in online discourse communities where participants are unseen, and where facial expressions and body language are not in play. Furthermore, in this form of communication they observe

that "charismatic and high status people may have less influence and group members may participate more equally . . . those people with powerful ideas will have more influence than those with powerful personalities" (p. 57). Considering how conscious adolescents are about peer influence and pressure regarding (among other things) physical appearance (England & Petro, 1998)—clothing, makeup, hair-style, as well as height, weight, for example—being able to communicate in something of an anonymous manner makes it possible for many of them to escape the constraints they experience in the traditional, face-to-face classroom setting. The visible signs and symbols, the biases, of the social hierarchy are not operative. Online, adolescents can be considerably more candid and confident in their communication—in effect, they can *really* express themselves. It is only what they are saying that matters, not who they are or what they look like.

Extending this view in another direction, Wallace (1999) construes the Web as a possible "identity laboratory" for adolescents' "personal experiments" (p. 48) with different aspects of their developing identities. Having outgrown the role-play phase of childhood, adolescents naturally migrate to experimenting with identities they might eventually assume (Erikson, 1968; Goffman, 1973). This has always been true of this age group, but today's technology makes it easier. By trying out differing personae online and presenting their views (who they are as reflected through their communication) in the safety of computer-mediated communities, adolescents are able to almost uninhibitedly experiment with variations on their evolving identities. As Wallace explains, it is the anonymity possible through online communication that enables such "safe" identity exploration.

A related capability of computer-mediated communication for adolescents is what Turkel (1995) calls selective self-presentation. When "talking" online, students can *gradually* reveal their personal beliefs, experiences, feelings, and opinions, their "inner selves," thus in a sense holding in check any possible social slight or rejection from the responder(s). Through electronic communication they can, in effect, probe what the tone and nature of the response might be, and calibrate their ongoing dialog accordingly. As importantly, Turkel notes, too, how computer-mediated communication affords students

the time for introspection and deliberation before they respond, particularly in asynchronous Web encounters. This gives them options such as withholding information they may not feel comfortable sharing, or "vetting" for social acceptance their thoughts before making them public. It also makes it easier for them to be less reactive because they have the time to think over their response, as well as the effects their response may provoke. Wallace (1999) adds it is also possible for students, during computer-mediated communication, to engage in metadiscussion in which they can step back from the interaction at hand and "mull over the nature of the discussion itself" (p.238). These opportunities for critical distance are not as likely during face-to-face classroom discussions, when students have very little time to think through what they want to say given the immediacy and dynamics of most school situations.

Another aspect to this mode of exploration is the dynamic of the "idealized audience perception" that adolescents may experience during online communication (Walther, 1996). Without encountering any facial or physical reactions to their words and opinions, Walther points out that adolescents can communicate as if what they are saying is being received by a supportive, non-critical audience. It is not the kind of audience adolescents usually encounter, particularly if their social and communication skills, and/or social standing, are poor. If this is the case, they typically elicit everything from ridicule to evasion in a classroom setting (Muth, Hart, Letendre, Ference, & Naumowicz, 1998).

Literacy tasks have traditionally provided adolescents a means of self-exploration through diaries, journals, poetry, and other forms of fiction writing. Indeed, nearly any form of writing lends itself to re-imaging oneself. To Brooke (1991), writing is nothing less than a powerful tool for adolescent identity formation, allowing them—through the writing act—to construct or negotiate aspects of their evolving identity. Writing enables the young writer to project and test certain voices, to try other perspectives, and to assume other personalities. It is a process by which one can discover a comfortable self, a real self, an acceptable self, a more powerful self, and so on. Turkel (1995) complements Brooke's point in her examination of life in front of the computer screen, saying that "in

the real-time communities of cyberspace, we are dwellers on the threshold between the real and the virtual, unsure of our footing, inventing ourselves as we go" (p. 10). For adolescents, the business of inventing themselves as they go is part of their existence (Erikson, 1968). But as Wallace (1999) and Turkel (1995) observe, the computer-mediated communication environment in a way fortuitously provides a sanctioned, low-risk setting for them to manage this stage of their development.

Spooner and Yancy (1996) offer an alternative perspective on the correlation between the use of technology and the user's social and personal purposes, presaging to some degree the work of Labbo and Reinking. In rhetorical situations, Spooner and Yancy (1996) state that the purposes for technology's use "are not defined by the mechanical process through which they travel, so much as by the social purposes of the rhetors" (p. 270). As Elkins and Luke put it, computer-mediated communication fulfills an essential personal need for adolescent learners by allowing them to experiment with ways to handle the social pressures stemming from the social hierarchy and dynamics in the classroom (1999). The mechanical process involved in the delivery of their thoughts is of minimal importance or interest to them. To the adolescent, as Spooner and Yancy (1996) explain, the devices and the communication process are simply a reality of today's communication networks and useful as a new means of transacting social discourse. Surprisingly, Spooner and Yancy also suggest new technologies do not necessarily give more empowering methods of communication to adolescents; rather, they are devices adolescents have opportunistically put to use for their own personal and social purposes. Adolescents' adoption of new technologies for social transactions brings to mind Wallace's view of technological determinism, namely, that "technological innovations are more effect than cause. Social and cultural forces build up and set the stage for technological breakthroughs, perhaps by directing human energy and capital toward solutions for existing problems" (p. 234). There is, depending on how you look at it, either a serendipitous or a genetic—"deterministic" in Wallace's vocabulary—by-product of having computers at home and in the classroom.

Whatever is one's perspective, computers *seem* to be a "plus." As noted earlier, data shows the increasing difficulty teachers have motivating adolescent students to focus on classroom literacy activities (Farber, 1999; Guthrie, Alan & Rinehart, 1997). However, adolescents will willingly spend time communicating with one another, spending countless out-of-school hours "talking" with their peers in a variety of computer-mediated communication formats (Doherty & Orlofsky, 2001; Baines, 2001). The positive for educators is that when they are involved in such communication, they are also involved in real-world literacy practices. Thought, language, and forms of expression are all in play. Understandably, Elkins and Luke (1999) call for teachers to appreciate and engage with their students in these new literacy practices.

> Teachers of literacy need to engage directly with new textual cultures of online literacy, of popular and youth culture, of mass media. Without this, we risk producing literacies that have little salience and critical purchase in the real worlds where adolescents lead their lives (Elkins & Luke, 1999, p. 214).

Effective Technology-Enhanced Learning

As classroom teachers become acclimated to the "new textual cultures of online literacy" described by Elkins & Luke, they are more than likely to encounter the socially constructed meaning-making of social constructivist theory (Jarvela, Bonk, Lehtinen & Lehti, 1999). In their study of computer-based learning environments and reciprocal understandings, Jarvela and his colleagues state that "various technology-based learning environments foster students' social knowledge construction and collaboration . . . in these environments, learners jointly construct knowledge and make use of their distributed expertise" (p. 364). The argument made here is that adolescents in computer-mediated environments can accelerate or enhance cognitive development because of the way learning is induced and produced through certain technologies. To put it another way, computer-mediated environments can have this benefit. The theoretical link here between technology and learning is from the social constructivists.

Social Constructivist Theory

Although they have different perspectives on the processes involved in learning, constructivist theory is credited to both Jean Piaget and Lev Vygotsky (Eggen &

Kauchak, 1997). Piaget, a cognitive psychologist, concentrated on the stages of cognitive development and learning, while Vygotsky, an educational psychologist, offered a predominantly socio-cultural perspective that emphasized the social origins of learning. Underlying constructivist theory in general is the belief that learners can only absorb new information in a way that makes sense to them on a personal level. Both Piaget and Vygotsky thought it counterproductive to expect learners to acquire knowledge through the traditional “transmission” model in which the teacher lectures and the students absorb (Rogoff, 1990). Instead, they believed that learners construct new understanding based on what they had already learned, activating their "schema" or prior knowledge as a means of grounding the new learning within it. What you knew helped you to understand and place what you were learning. On a basic level, constructivist theory suggests the following:

- Learners must construct their own understanding
- New learning depends on current understanding
- Learning is facilitated by social interaction
- Meaningful learning occurs through authentic and active learning tasks (Bruning, Schraw & Ronning, 1995)

While both Piaget and Vygotsky are considered constructivists, they have made differing contributions under the banner of social constructivism. Piaget’s model, cognitive constructivism, explains the creation of new knowledge in developmentally predictable stages; the animating principle is a dialectical process involving phases of assimilation and accommodation, and the concept of schemas (Piaget, 1970). Vygotsky’s social constructivism emphasizes the social context of knowledge acquisition with particular attention to intersubjectivity, the shared learning that occurs among participants in any educational endeavor, whether formal or informal. According to him, interpersonal learning leads naturally to intrapersonal learning, that is, by learning with others, individuals learn more about themselves. One type of learning does not preclude or supercede the other. Although social constructivism encompasses all of the basic constructivist characteristics, it emphasizes the social context of the learning environment

and considers the implications of the learner's home culture (Rogoff, 1990). Social constructivists advocate student-centered instruction with personal exploration and discovery at the heart of the learning process. Also central to their thinking is the concept of distributed expertise, the belief that the command of subject matter within a group is constructed through social collaboration and deliberate inclusion of multiple interests, talents, and perspectives (Brown, Collins & Duguid, 1989).

Current research suggests that the best educational practices involving technology are pervasively informed by concepts associated with social constructivist theory (Means, 2001; Asselin, 2001; Harris, 2001). If this in fact is the case, teachers who are beginning to integrate technology into their practice should find it easy to continue using social constructivist techniques which are familiar to them, and have served them well in their traditional approach.

Current Concepts of Best Practice

It has been recognized that technology has an unusually powerful capability to affect education, and that its use in schools has both philosophic and practical considerations. The most definitive body of guidelines to help educators frame technology's overall purpose and use comes in the form of National Education Technology Standards (NETS) for Students (International Society for Technology in Education [ISTE], 2002). On a very general level, the Standards call for teachers to "address the basic concepts and operations of technology systems" with their students. More specifically, the Standards include guidelines for teachers to observe in introducing and integrating technology in the classroom. As the NETS web site explains: "Teachers can use these standards and profiles as guidelines for planning technology-based activities in which students achieve success in learning, communication, and life skills" (http://cnets.iste.org/index2.html). The guidelines are based on a view of technology as a set of "tools," with each one having individual purpose and considerations.

- Technology as a social, ethical, and human tool - to ensure students "understand the ethical, cultural, and societal issues related to technology" in order to use technology "responsibly."

- Technology as a productivity tool – to "collaborate, enhance learning, prepare publications and promote creativity."
- Technology as a communication tool – to "interact with peers, experts and other audiences" and to use a variety of media and formats to communicate to "multiple audiences."
- Technology as a research tool – to "locate, evaluate, and collect information from a variety of sources" and to select resources most "appropriate to specific tasks."
- Technology as a problem-solving and decision-making tool – to "make informed decisions" regarding problem-solving opportunities in the real world (ISTE, 2002).

The Standards are helpful and even inspiring; they lucidly articulate an almost humanistic view of technology's purpose and uses, and remind us of its power for learning, of the breadth of its reach into student lives and the world around them.

Notwithstanding the value of the guidelines, as well as the growing literature in support of technology's place in the classroom, there are still "hard" questions to answer about technology's core usefulness for education. Asselin (2001) poses the question succinctly: "What purpose does [the addition of] technology serve and what does technology offer that cannot be done in other ways?" (p. 49). There is as yet not enough data to answer this question. Impartial observers would have to concede that technology's introduction into schools is incomplete, is ongoing, and is not informed by any consistent body of practice or influenced by any previous paradigm. Everything is still evolving. Consequently, an answer one way or the other—certainly any definitive answer—cannot be made. Recent research, however, does point to learning issues and goals that technology is uniquely suited to address. The work of Harris, Wiske, and Means offer several prominent examples.

Harris' (2001) description and discussion of technology activities as "spaces for understanding" builds on the NETS categories, as well as on the Teaching for Understanding (TFU) model created by Wiske (1998). What Harris offers teachers is a more goal-oriented focus to work from, the goal being true and observable *understanding*

in the learner. Harris suggests using Wiske's model as a blueprint to help design learning activities that require teachers to "decide what students should understand as a result of engaging in a learning activity" (Harris, 2001, p. 51). Harris characterizes the resulting specific, student-centered learning activities as "performances for understanding" (Wiske, 1998; Harris, 2001), that is, activities where students "use what they know in new ways and situations and show their understandings in an observable way" (Harris, p. 52). When designing learning activities that involve online tools and resources, Harris urges teachers to use the concept of "performances for understanding" to inform their purpose and approach with technology. To Harris, in general, technology-enhanced activities are especially adaptable for eliciting performance-based learning.

More specifically, Harris offers three learning categories or processes, and a group of activities for each, that combine performance as the goal and technology as one of the means. The names of the categories are for the most part self-explanatory, but it is the technology features and the related activities that are of the most interest. The activities are called "telecollaborative activity structures." Harris's first category, called *Interpersonal Exchange*, includes long-term, short-term, and variable-term means of communication, and involves activities such as keypals (online pen pals), tele-mentoring (online mentoring), electronic appearances, question and answer sessions, and impersonations. Harris's next category, *Information Collection and Analysis,* includes tele-fieldtrips (virtual fieldtrips), information exchanges, database creation, pooled data analysis, and electronic publishing. Finally, in the *Problem Solving* category*,* Harris calls for activities that involve "authentic commitment to assisting others," such as social action projects, simulations, tele-present (collaborative) problem-solving (through video-conferencing), parallel problem-solving (through peer feedback sessions), and information searches.

Means (2001) views new technologies as having the potential for teaching in a way that increases "meaningful learning" in the classroom. According to Means, the power of technology-enhanced learning activities lies in their capacity for "real world" connections that involve authentic and challenging tasks and issues. To Means, the ideal

use of the Internet in the classroom allows for and encourages these types of connections—for example, to outside experts and distant peers, to issues and information and views external to the classroom environment—and provides opportunities for multiple perspective-taking as well as feedback on "published" student products. Means also cites the visualization, analysis, and problem-solving dimensions inherent in computer-based resources, features that can extend the learner's own capabilities to understand and present information.

The preceding very briefly summarizes some of the current thinking on technology and its application in the classroom. Although this information may be viewed as falling into the gray area of theory and practical advice, it does offer some "concrete" assistance to the teacher stepping into the new teaching environment. In this body of literature, there *are* models and guidelines that can be implemented and followed. Just as Vygotsky (1978) called for teachers to scaffold their students' new learning, researchers and other educators who offer a framework, or advice, or a rationale for integrating and using technology in the classroom can help "scaffold" the initiation and learning of their peers.

Theories of Reading and Adolescence

Moving away from the research on technology and learning, I now examine both past and present perspectives on two other topics of primary interest to my study—response to reading and the adolescent learner. I have designed this section to offer a sequential "organizing image" for these topics (Riley, 1963). There are two subsections. In the *Reading and Response* subsection, which follows, I explore Dewey's and Rosenblatt's influence on reader response theories, as well as the current thinking on engagement with literature. In regards to the latter topic, I offer an overview of what text engagement entails as a cognitive and literacy process as well as how engagement can manifest itself in the classroom setting (so as to recognize it).

In the second subsection, *Adolescent Development*, I include a brief survey of research on adolescent development, particularly the research theories of Piaget, Kohlberg, and Erikson. While the "stage theorists" are not presently in educational vogue,

they offer a time-honored framework for adolescent growth that underscores some of the more current adolescent development research I also include in this section of my literature review.

Reading and Response

The Influence of John Dewey

When I began my literature review, I was inclined not to include John Dewey in it. Whenever I had come across his name, it was often from the standpoint of historical interest, with nothing to suggest his relevance for today's educational issues. After all, what could a thinker born before the American Civil War (in 1859) have to say that possibly applied to education in the context of *our* technology today, especially in respect to issues to do with teaching and adolescent learning? But the more I read about him and his thought, the more I realized Dewey indeed has relevance for my study and for our age. Foremost is his position (1899) regarding the importance of understanding and educating the "whole child," which means not only the cognitive component of learning, but the practical, social, and moral as well. His other major philosophical position, namely, his stress on the importance of educators constantly and willingly embracing change, similarly illustrates the value he attached to providing education that fits the learner in his world. As such, Dewey's beliefs remain educationally prescient and as applicable to today's challenges as they were a century ago.

A core strand to Dewey's thought was his conviction that a willingness to accommodate change, whatever form the change might take, was critical to the spirit of dynamic and meaningful education. At the turn of the twentieth century, he stated that "education had to be practical and prepare students for the societies they are living in now, not the societies of long ago" (in Elkind, 2000, p. 56). He stressed that educators had to be constantly aware of the "possibilities of the future," and argued for a teaching philosophy and for methods informed by the sense of "exploration and discovery" that social constructivists favor today. Dewey was an early advocate of the need to consider education through the eyes of the child, one of the first to formulate the view that educational content and methods must be adapted to the needs of the child. He also

recognized the importance of understanding and exploiting the interaction between a child's home, school, and community—the type of contact and connections new technologies are beginning to make possible (Turkel, 1995; Doherty & Orlofsky, 2001).

> From the standpoint of the child, the great waste in school comes from his inability to utilize the experiences he gets outside of school in any complete and free way; while, on the other hand, he is unable to apply to daily life what he is learning at school (Dewey, 1916, in Elkind, 2000, p. 56).

Louise Rosenblatt and Transactional Theory

Louise Rosenblatt brought out reader response theory at the time of the New Criticism in America. Whatever one's view of this literary creed, its chief characteristic to Rosenblatt was its formalistic rigidity in viewing and explicating literature. The New Criticism, in fact, seemed to her to epitomize the era. As she said, it was during this time, too, that " behaviorism dominated psychology and logical positivism reigned in philosophy . . ." that is, equally rigid intellectual systems to her that were in their heyday. As a result, "the 'poem,'" as she referred to a literary text, "was an autonomous entity to be objectively analyzed" (1990, p. 102). Literature as a whole was considered a teaching resource; literary texts could be explained with certitude using predetermined guidelines and tight literary definitions. Literacy education itself was to be mainly concerned with teaching how to interpret an author's words "correctly." Observing external voices of "experts" was taken for granted as the form of conclusive authority. There was no room for making any personal connections, no need for a reader's response.

Rosenblatt's reader response theory ran decidedly counter to contemporary thinking and practices regarding literacy instruction. She saw reading as a dynamic experience, fluid in nature, one in which each student could "live through" the text in his or her own way depending upon the story, the characters, and the reader's own personal history. Rosenblatt (1995) shifted Dewey's concept of functionalism into literacy instruction, believing that shared literature experiences in school "allow the student to make sound choices through imaginative trial and error or experimentation—through experiencing in the literary work, the consequences of alternative actions" (p. 212).

The last statement is of a piece with Rosenblatt's most provocative view which held that students could use literature to internally prepare themselves for choices they inevitably would need to make in their lives, a view somewhat like Bettelheim's (1989) regarding the role fairy-tales play for young children. Students' "reading lives," Rosenblatt maintained, would spill over into their "real lives" if they were encouraged to view literature through the lens of their knowledge and experience instead of through a list of teacher-generated, right-or-wrong rules and definitions. Rosenblatt also believed that readers brought natural stances to their encounters with text. Each stance might vary situationally—it could be efferent, for instance, if the reader's main purpose was to extract information (as was frequently required in the classroom setting), or it could be aesthetic if the purpose was to experience the text on a personal and emotional level.

Over the years, reader response has become an umbrella term that encompasses a number of related reading theories, each one highlighting an aspect of the relationship between reader and text. One of the better-known reader response theories is transactional theory. Again, the names Dewey and Rosenblatt are linked. Rosenblatt, borrowing the term *transaction* from Dewey (the first to compare back-and-forth learning interactions with more circular transactions), explained that what actually occurs between a reader and a text involves the dynamic of *reciprocity*—each one (the medium and the reader) having an effect on the other. Probst (1988), influenced by Rosenblatt's interpretation and her application of Dewey's beliefs, subsequently made a statement in regards to this exchange that resonated with more progressive members of the reading community: "text in the absence of a reader is simply print" (p. 378). In other words, without the sentient presence of a reader, the text becomes nothing more than an inanimate object, a collection of words on a page. It is the circular transaction between reader and text that confers meaning and enrichment for the reader.

Rosenblatt and the many researchers/educators who have expanded on her work over the years see reading not only as a personal act, but also as a social act. Their premise is that a reader's transaction with text is affected by the context in which the reading takes place (Beach, 1993). Gee's (1999) concept of socially situated learning is

directly aligned with Rosenblatt's (1985) discussion of the social nature of classroom reading. Rosenblatt defines classroom reading as "an event involving a particular text, happening at a particular time, under particular circumstances, in a particular social and cultural setting, and as part of the ongoing life of the individual and the group" (p. 100). Like Dewey before her, Rosenblatt maintained that learning could not be separated from its social context or from the learner's background.

Engagement with Text

While there are a variety of definitions for text engagement, there is unanimity among current reading researchers that text engagement is a cardinal goal of literature instruction (Guthrie & Wigfield, 2000). Yet, in a way, researchers and educators are starting from "square one" because of the very basic issue of student motivation to read. As noted earlier, there is evidence it has been declining and its reversal ever since has been an ongoing battle for reading teachers and educators. To everyone in the field, motivation is the "foundational process" underlying "true engagement" (Guthrie & Wigfield). Without it, the probability of engagement is undercut.

This concern in education with student motivation was a main factor in the decision by many US schools to use trade books in place of reading textbooks for classroom reading instruction. Reading textbooks, modeled on the McGuffey Readers introduced in 1837, dominated classroom reading material and instruction until the 1980s. Today they are generally considered less engaging to students than trade books or "authentic" literature (Farnan, 1999; Routman, 1996). Routman defines the literature currently employed to improve reading motivation as a wide range of reading materials which includes: picture books, folk tales, fables, myths, fantasy, science fiction, poetry, realistic fiction, historical fiction, nonfiction informational books, and biographies. The hope among middle school educators is that by offering a wide range of authentic reading materials, students will be more inclined to read, possibly reversing the downward trend in literacy achievement that accompanies adolescence (Bergin & LaFave, 1998).

As educators strive to enhance engagement, the question arises as to what, exactly, engagement is? How can a teacher tell if a student is engaged with a certain text

while reading? Are there external signs or evidence it is taking place? As a former reading teacher, I can say that text engagement as an observable behavior is not easily verifiable. Students may appear to be completely absorbed in a particular book—for example, their eyes may appear to be scanning lines of text, and they may be turning pages at appropriate intervals. However, it is difficult to say whether they are actually processing anything, and whether there is any critical thinking going on.

Although Nystand and Gamoran (1991) admit that there is a lack of clear behavioral manifestations of engagement, they also note that behaviors displayed by students who *are* engaged in the reading process can vary greatly. Rather than trying to rely on observable signs as corroboration of text engagement, Nystand and Gamoran instead limit themselves to trying to define the dynamic through a description of what is occurring cognitively. Their working premise is that at the heart of engagement is a student's involved and sustained personal commitment to "creating an understanding" of the text. To them, it is an active process that fully commits the reader's faculties. Csikszentmihalyi (1990) similarly describes the cognitive process involved in text engagement as something that occurs when a student is "thoroughly absorbed" in the task of reading, in a "state of flow" in which he or she is temporarily unaware of the distractions of the classroom setting. Yet, as the preceding citations indicate, what precisely is going on in cognitive terms is difficult to pinpoint for researchers. More often than not, they have to resort to description or metaphor to try and particularize the nature of engagement. For teachers, looking for a "state of flow" is not a useful means of identifying text engagement.

Corno and Mandinach (1983) offer a more considered framework to account for the processes involved in text engagement. To them it is a form of metacognitive, self-regulated learning in which students go through several distinct "engagement" phases before and during the reading act, as follows:

- Planning – students adopt a reasoned approach and sequence to performing a task. They peruse the materials at hand and form a clear direction and purpose for their reading.

- Selecting – students separate relevant from irrelevant material. They know where, how, and why to focus on certain aspects of the text.
- Connecting – students blend incoming information with prior knowledge. They also make connections not only to their personal histories, but also to their ongoing roles as classroom and community members.

Corno and Mandinach (1983) offer a number of suggestions to help teachers coax out text engagement. First, they say, teachers must provide classroom conditions that support the key reading processes—that is, planning, selecting and connecting—so that students can more easily enter into text engagement as a metacognitive state. At the same time, guidance should be given to students to help them engage with text through those reading processes, that is, help them to understand the nature and intent of each. Next, Corno and Mandinach remind teachers to enjoin students to read critically, to question texts as they apply prior experiences and knowledge to what they are reading. Finally, they emphasize that the social cognitive perspective of text engagement must also be considered, maintaining that classroom setting and dynamics influence not only student engagement, but also their willingness to share interpretations of readings.

Certain issues come into play regarding the teacher's role in encouraging engagement. Text engagement for students from homes where there is a strong national and ethnic cultural influence is a unique challenge for teachers. They must not only be sensitive to this diversity in their classrooms in general, but must also make an extra effort to help students from culturally diverse backgrounds engage with texts. Ideally, those texts should represent experiences that are recognizable and meaningful to the students (Au, 1993; Nieto, 2000).

Another issue in the area of text engagement is the problem of assessment. If, for example, the mental processes described by Corno and Mandinach are useful as criteria, how would a teacher then assess the results? What kind of results are there to assess? Is "engagement" measurable? There are several schools of thought regarding this issue, most of which take holistic approaches to assessment. Langer (1992), for instance, states that what teachers should be looking for is student interpretation rather than student

ability to extract meaning in a right-or-wrong format. Langer's point, I believe, is that by virtue of a student simply having an interpretation to offer—whether "right" or "wrong"—is an indicator that a valid engagement with the text did occur. In a sense, the assessment is complete or validated (to a degree) with the interpretation being the evidence.

A second complication in assessment is this: how can teachers make any kind of assessment if a student is not willing to talk? Why are they not talking? Do they not feel free to share their views and feelings? Comfortable? These questions go to the heart of an issue that comes from the critical literacy school—namely, the presence of *participation structures* in classrooms that inhibit many students from talking while others feel free to monopolize discussions (Dyson, 1993; Fish, 1980). Flint (2000) discusses these participation structures in terms of the "interpretive authority" within a given group, explaining that students assume certain roles and identities in the classroom depending on the status and level of power they feel they have. Student status and power are mediated by numerous factors, including age, gender, feelings of self-worth, and self-perceived intellectual ability in comparison to other members of the group. A further wrinkle to this situation is that the student identities are not static. For example, in Gee's (1999) discussion of classroom discourse (which also encompasses elements of contextual status and power), he notes that interpretive authority or contextual identity has a somewhat chameleon nature, that is, it changes according to circumstances. For example, a student may have a higher status quotient in one classroom and a lesser one in another. Gee posits the existence of "situated identities" to account for this, explaining that students assume multiple identities based on differing contexts. Gee goes on to describe how these assumed identities can either encourage or restrict text engagement.

Summary—The Value of Reading Research

The concept of interpretive authority is especially helpful to me today in construing the nature of the social dynamics in my classrooms when I was a teacher. It was certainly clear then that some students spoke not only more frequently, but with a tone and manifestation of confidence (in short, authority) that inhibited others from

saying anything during classroom literature discussions. There was a certain authority they had that caused others to hesitate to speak or to simply defer to the main speaker's opinions. Fear of ridicule or some form of slight were two reasons. This experience for me brings forward the central issue which I believe Bahktin (1986) describes most accurately: "For significant numbers of students, the fear of self-disclosure is so great that one is unable to demonstrate what one has taken from and made out of a reading" (p. 405).

Are research theories in general helpful to teachers? In the case of reading teachers, for example, can any of the theories that deal with various aspects of assessment make a difference? As a former teacher, I do appreciate the fact that theories can help in making sense of what may be going on in the classroom, and help stimulate fresh thinking about the social dynamics, as well as about new approaches to engagement and assessment. For example, if the idea of classroom participation structures seems probable, I and most teachers—presumably enlightened as to what is taking place upon reading the research—will likely devise some means of enabling other students to speak out during discussions. This may improve both the students' engagement with text and a teacher's ability to assess that engagement.

In a sense, being influenced by the concepts of interpretive authority and situated identities in the classroom might make assessment more difficult. This is because we must always take into account not only what outward appearances suggest, but also find ways to counter the factors contributing to them or at least find other ways to elicit evidence of engagement. One way, for example, comes from Dentzin (1994) who suggests that teachers solicit emic perspectives of engagement, that is, they should ask students to share their own perceptions of their engagement. This could be accomplished either through personal interviews (a time-consuming endeavor) or through journal responses about their experiences of the readings and of the literature discussions.

In the context of my study, some of the research reading that I did certainly informed my approach to its design. It also heightened my awareness of the social and cognitive dynamics possibly taking place. From one end of the spectrum, Dentzin's

(1994) suggestion about using an emic form of assessment made sense to me, offering as it does a quick and practical means of obtaining ongoing study data. While neither interviewing nor journal-writing is a foolproof method of assessing student engagement, they are two of the methods I opted to use with my student participants. At the other end of the spectrum, the more theoretical research influenced me much more fundamentally for the purposes of my study. In brief, there were two effects: first, it shaped my views going into the study from the standpoint of giving me a basis for designing an assessment plan; and second, it sharpened my perceptions during the study as participant observer. In particular, the concepts of interpretive authority and situated identities were of immense value to me in evaluating student interactions during the sharing of literature. Finally, the research gave me the means to usefully frame and compare the sharing of literature in an online environment to sharing it in the traditional, face-to-face classroom model, and to assess how each of these "venues" affected students' text engagement *and* their perceptions of text engagement.

Adolescent Development and Social Growth

In this section I review stage theories of adolescent development and theories regarding the adolescent learner. Although these theories are not favored as the primary determinants of adolescent behaviors with educational researchers presently, they are still regarded as a realistic general benchmarks within the field of adolescent development and are therefore useful for the purposes of my study.

Adolescence marks the transition from childhood to young adulthood and, as with any period of human development, adolescence is one marked by uncertainty, disequilibrium, and sometimes unpredictable behaviors (Erikson, 1968). When attempting to understand these transitional periods, the tendency among researchers is to form categories that may help to both conveniently "contain" as well as to explain any unsettling or problematic behaviors. England and Petro (1998), in discussing this tendency, state that "categorization processes are important in the storing and processing of information about people" (p. 351). Their point is that when we are not sure how to describe transitional behaviors, we find it helpful to draw lines—to categorize. This

categorization is especially to be seen in the explanations of human behavior known as "stage theories." In order to discuss and analyze the behaviors of my student participants from an informed standpoint, I include the stage theories as well as more current research regarding adolescent learners.

Stage Theories and Adolescence

Three of the major contributors in this area are Piaget, Kohlberg, and Erikson, all of whom have had significant influence on educational theory and practice. Each, however, addresses the issues involving adolescent growth and learning in unique ways. Consequently, each one's theories influence us to the degree that they coincide with our existing perspectives on such issues and/or are congenial to us for other reasons.

Piaget. Piaget saw cognitive development and learning as occurring within a graduated process that encompassed four major stages, from infancy to adulthood. The stages are as follows: the sensorimotor stage (ages 0-2); the pre-operational stage (ages 2-7); the concrete operational stage (ages 7-11); and, lastly, the formal operational stage (ages 11-adult). To allow for some degree of individual variation, Piaget's stages are located on a moderately flexible continuum and admit areas where an individual straddles or is in between two stages. The adolescent, for example, in most cases falls between the concrete operational and formal operational categories. According to Piaget's classification, this means that during adolescence cognitive activity is still largely grounded in concrete operational processes (processing information based on concrete examples), but gradually is able to begin to think abstractly and to solve hypothetical problems (formal operations). Because the ability to think abstractly is not yet fully realized in adolescence, Piaget also noted that this cognitive "immaturity" would likely leave in its wake the same confusion that attends any period of transition. Given this situation, Piaget explains that oppositional behaviors are likely to occur.

Kohlberg. Kohlberg's (1963) created a highly influential system and taxonomy pertaining to the levels of moral development. Whereas Piaget's system of stages dealt predominantly with intellectual development, Kohlberg offered a classification model to systemically order and describe moral growth and issues related to it. For the purposes of

my study, what was of particular interest to me was his exploration of one of the most universal and difficult aspects of adolescence—the powerful need for peer approval and acceptance. Kohlberg divided moral development into three levels: pre-conventional ethics, conventional ethics, and post-conventional ethics. Each level has a number of stages within it to account for various individual and social developmental behaviors. For example, the adolescent falls into the conventional ethics category, which includes a majority of behaviors from Stage 3 (preoccupation with interpersonal harmony) and some behaviors from Stage 4 (preoccupation with law and order). Within Stage 3 behaviors is the need adolescents have to be accepted by others. This need is so crucial to them that personal decision-making is usually influenced by the expectations and standards set by peers. Stage 4 behaviors, however, lead some adolescents to question why they remain unsure of themselves in social settings if they believe they are behaving as expected by their peers. In that light, Kohlberg's system is valuable for giving arguments by which to understand the tensions marking the adolescent period, and the potential effects on learning.

Erikson. Erikson's (1968) general focus was on what he termed psychosocial growth, and on identity more specifically. He constructed a system of psychosocial developmental stages that involved both the cognitive and moral aspects of human growth. Interestingly, he admitted that the impetus for his overarching theoretical framework were his memories of his own feelings of uncertainty during adolescence. Erikson was particularly intrigued with how people build a personal identity while simultaneously learning how to relate to others (Eggen & Kauchak, 1997). The main features of Erikson's classification system—called the stages of psychosocial development—are categories that juxtapose "values" with the periods or stages man goes through. They range from the "values" of trust vs. mistrust at one end (tied to the period of infancy) to integrity vs. despair at the other (old age). Adolescents are placed in the revealing identity vs. confusion category. The values here are not as weighted with any "critical" meaning; in fact, they connote the nature of the period's (adolescence) angst. According to Erikson, adolescents are by and large consumed with the business of

identity formation, trying to determine who they are in relation to their past as well as who they should be in relation to the expectations of their school, their culture, and their peers. To Erikson, the adolescent's personal, social, sexual, and occupational identity begins to form upon experimentation with differing roles and expectations.

Once again, such theories can help educators and teachers. I believe their principle value is that they: 1) provide information, in detail and in summary; 2) offer propositions, enlightening or provocative, "right" or "wrong," 3) galvanize thinking and inquiry along holistic lines (intellectual, moral, psychological) for further or new understanding of the basic human dynamics effecting learning and behavior. Even though my reading scarcely scratches the surface of what is available to read, and my survey is brief, the review experience for me has been intellectually rewarding. And even though I have but a passing acquaintance with the work of Erikson, Kohlberg, and Piaget, I have useful theoretical constructs regarding the adolescent period, including the perennial issues of why adolescents are easily distracted by their peers; why they may not be motivated to learn in a teacher-centered, objectivist setting; why they have other things on their minds. The insights to be found in "stage" theories, as well as in functionalism, transactional theory, and social constructivism, can clearly enlighten even the seasoned teacher.

The Adolescent Learner

The middle school years—the period spanning elementary and secondary education—are characterized by researchers Simpson and Oliver (1990) as being the "most critical time" in a student's life, "the period [in which] most adolescents decide between a lifelong interest or disinterest in learning" (cited in Daisey & Jose-Kampfner, 2002, p. 579). Most researchers agree teachers must make meaningful connections to their students during this formative three-year period if they are to foster any lasting interest in learning. A number of ways are suggested to do this. For example, based on her own research with adolescents, Au (1993) thinks teachers should view adolescent classrooms as communities. When teachers predicate learning activities on an appreciation of the individuality of students, and on a view of the classroom as a community of learners, they are more likely to fashion optimal learning environments

(Au, 1993; Easton, 1997). They are then—by extension—more likely to capture the attention of students during the watershed adolescent period. Au further notes that these communities can embody a sense of balance or "wholeness" in spite of the diversity among individuals in the classrooms.

As a community, of course, the adolescent "community of learners" has commonalties as to be expected of any group. In this case, the commonalties are issues of the multiple life transitions this group experiences during adolescent growth (Eccles et al., 1993). In order to harvest the most out of student learning during the "critical time," that is, the initial three-year period in adolescence, researchers encourage middle school teachers to become familiar with these commonalties so that the classroom expectations they set will be in line with the exigencies of the adolescent period (Muth, Hart, LeTendre, Ference & Naumowicz, 1998). In short, teacher sensitivity to development issues can improve learner behavior.

More specifically, what are some of the factors making the adolescent period so difficult for adolescents, and consequently affect learning? On the broadest level, Muth (1998) attributes the changeable and sometimes negative behaviors during adolescence to multiple and simultaneous life transitions that are part of the adolescent growth cycle. These life transitions involve radical individual and social transformations, such as physical development (the onset of puberty and emerging sexuality); social role re-definitions (with likely changes in peer cohorts); and cognitive and school transitions (as students move from the familiar expectations of the elementary school environment to the more emotionally charged middle school environment). Muth points out that not all adolescents experience the same problems with the transition from childhood to young adulthood, but that certain problems and signs are likely to occur with regularity. The most common of these include declining grades (particularly for females in math and science); a general decrease in school-related motivation (for both male and female students in reading); a decline in self-concept and confidence (stronger in females than males); and an increase in conflicts with parents and other family members. While the last three are all serious factors and each can materially contribute to declining academic

achievement during adolescence, it is the loss or impairment of motivation that has drawn the most attention from the research community (Anderman & Maehr, 1994). Why is this? What happens to motivation?

In their discussion of age-related declines in motivation, Anderman & Maehr (1994) state that "negative attitudes and behavioral patterns which defeat any major investment in schooling are common" (p. 288). This is to say that poor attitude and behavior affect learning accordingly. What sours a student then? Parallel research points to the probability that a decline in motivation is related to a student's perception of the connection between his or her efforts and his or her innate abilities (Eccles & Midgley, 1989). This concern coincides with, and is possibly affected by, a growing tendency in the middle grade years to stress relative ability rather than progress in learning. Anderman and Maehr explain that as a result, "a situation arises in which putting forth effort may be problematic . . . to put forth effort and fail means that one is 'dumb'" (p. 290). With their feelings of self-worth in flux and vulnerable, putting out full effort in school and possibly failing is not a risk many adolescents want to take (Eccles et al., 1993).

To bolster adolescent motivation, Anderman and Maehr (1994) suggest basing student activities on task-focused goals. With such goals, students' efforts are directed toward learning for intrinsic reasons, such as learning in order to attain "task mastery." In contrast, when goals are ability-focused, students find themselves competing with their peers, and having to demonstrate their ability to outperform one another. And even though adolescent development is marked by a sense of growing independence, self-determination, and autonomy, these "plus" characteristics are often offset by a stronger need for peer approval and social acceptance (Carnegie, 1989). Thus, pitting students against one another through ability-oriented learning activities runs counter to what adolescents need at this stage. Instead, by situating them in cooperative learning environments where they can help one another plays to adolescents' strengths and needs, and is supportive of both cognitive and social development. This approach seems

particularly suited for what is emphasized as the most "critical" learning period in an adolescent's life.

Snapshots of Contemporary Literature and Learning

I open this section with what Jackson (1990) refers to as the "ordinary stuff" of schools and classrooms, a quote that captures the flavor of what a school day is every day, year after year:

> . . . the nitty-gritty world of chalk dust, raised hands, late assignments, hall passes, posters, workbooks, bulletin boards, questions, answers, quizzes, and all the remaining sights and sounds of a typical school day, including, of course, the suppressed yawns and heavy eyelids of late afternoon (p. 160).

I would add to Jackson's description the "stuff" we are all accustomed to seeing and hearing 13 years later—namely, the glow of a computer screen, the tap of fingers on a keyboard, and possibly (if the teacher's back is turned), the beep and greeting – "You've Got Mail."

Literature and Learning as a Social Act

Research studies conducted in contemporary reading classrooms frequently refer to a "classroom culture" and to "classrooms as communities." Based on their observations, researchers propose that shared readings and thoughtfully led classroom discussions of the readings foster respect for multiple perspectives. By sharing interpretations, students discover human "commonalties." This viewpoint, which echoes to some degree Rosenblatt's (1978) theory of emotional parallelism (literature as a means of discovering social commonality) reaffirms the crucial role many researchers feel reading has for social and personal growth.

With this idea of the classroom as a community, and with a new understanding of the social potential reading and discussion have for the classroom, I found the introduction to Lewis's (2001) research surprising and provocative.

> In this volume, I argue that interpretation itself is a deeply social act. Through such examination, status and power negotiations become clearly visible, underscoring the critical role of the peer dynamic and posing a challenge to the concept of the classroom as a unified learning community so often idealized in education literature (Lewis, 2001, p. xxii).

Lewis's yearlong, ethnographic study of classroom literary practices took place in a combined 5th and 6th grade classroom. Assuming the participant observer's role, Lewis followed the experiences of five students and their teacher as they read and responded to a work of young adult literature. Lewis focused her research on four classroom practices that were currently favored in middle school reading instruction: read-aloud, peer-led literature discussion, teacher-led literature discussion, and independent reading. What she found, or at least her description and interpretation of her findings, seems to go against the grain of much current thinking. The very title of Lewis' study, *Literary Practices as Social Acts: Power, Status, and Cultural Norms in the Classroom* gives a good hint of where she was headed. Briefly, Lewis' findings suggest to her that classroom interactions are largely performative acts and that "speakers and writers take up positions in relation to the expectations of others" (p.13). In her discussion of related literature, Lewis refers to the writings of Bahktin (1986), in particular to the statement regarding the "risk taking" by adolescents when offering interpretations to peers during discussions of reading. Her point is that it is indeed risky for many to do so at this junction in their lives—namely, in the company of their classmates, and in a setting with a certain social order or power structure.

I review the Lewis study at some length for two reasons. First, I agree with her principle argument that "the meaning one gives to literature, including its function and interpretation is, above all, a social act" (p. 4). I experienced firsthand what Lewis describes as the "literary culture of a classroom," with its "temporary 9-month life span." I experienced it with different groups of adolescents over the ten years I spent in the classroom. More importantly, I experienced the frustration of seeing certain students dominate interpretations of literature while others were silent. At the time, not having encountered the writings of literacy theorists and researchers, nor concepts such as participation structures, socially situated meaning, multiple realities, and so on, I did not have any labels or constructs to help "name" what was going on in the classroom..

The second reason I was favorably drawn to Lewis' study involved her candor and non-judgmental tone and outlook. Lewis reacts to the reality of the contemporary reading

class with questions such as, "what can we do" instead of "what should we do." She agrees we occasionally need to view the classroom as what Turner (1974) refers to as a "communitas – a place of social drama and struggle that can lead to cultural growth" (cited in Lewis, p. 14) rather than always thinking we need to focus on building community. In other words, the push and pull in the classroom can have positive results, and our emphasis does not always have to be on homogenous community values. Going further, Turner adds to the idea of communitas the concept of liminal spaces—spaces between social worlds in which healthy negotiation and struggle can occur. This concept has a conceptual forebear in what Vygotsky (1978) described as the "contact zone," a locus for differing perspectives to meet.

I believe Lewis has it right about the "performative" dynamics underlying student interaction in the reading class. Although as a teacher I thought I had to try to harmonize the views of my charges during discussions of literature, today I accept the notion that learning and growth do involve a certain amount of disagreement, struggle, and negotiation. As a result of Lewis, I anticipated seeing some of this in Lorraine's classroom; in fact, I could look forward to witnessing it—so to speak—because I would not be the teacher, but the researcher. As a participant observer, I would have the opportunity to study the dynamic.

Literature and Learning with New Technologies

> Teachers of literacy need to engage directly with new textual cultures of online literacy, of popular and youth culture, of mass media. Without this, we risk producing literacies that have little salience and critical purchase in the real worlds where adolescents lead their lives. (Elkins & Luke, 1999, p. 214)

At present, there is little research on actual cases of reading classes using new technologies (Leu, 2000; Labbo & Reinking, 1999). Although the preceding quote from Elkins and Luke makes clear the need (in their opinion) for schools and teachers to integrate online and media "cultures" into the teaching process, it has not yet happened on any widespread basis. There is little research in the area to fall back on as a result. Therefore, I felt very fortunate to come upon the work of Albright, Purohit, and Walsh (2002), a university researcher and two 8th grade teachers from a school district in New

York's Chinatown, who studied the use of electronic chatrooms in student-led literature discussions.

Albright, Purohit, and Walsh (2002) explain it was "an intrigue with their students' literate lives outside of school" that was the research motive behind their study. Reading about the "literate lives" of the fifty-five 8th graders who served as their participants, I could understand the intrigue. The main stimulus to their work is as follows: while they note that although the students who attend the school (in which 85% of the population receive free or reduced lunch) lead what appear to be socially and culturally circumscribed lives—students rarely venture beyond their Chinatown neighborhoods—they at the same time lead "extremely full online lives." In fact, Albright, Purohit, and Walsh reveal that "a significant number [of these students] spend more time online than in school each day" (p.694), a situation that enables them to transcend the limitations imposed by their family, society, and culture. I found the researchers' description of these technically savvy students making their way through a "new information landscape that features new constructions of identity" reminiscent of Turkel's (1995) point about students "inventing themselves as they go" in the new technology environment. Being "in the know" (informed, "with it," "up to speed") and being someone else (a "cyberself") is possible for the online student through electronic explorations.

Knowing of their students' "construction" and assumption of online identities, or "cyberselves," as well as the amount of time they spent in the online world, Albright, Purohit, and Walsh hoped to extend that kind of electronic communication to school-related activities. Specifically, Walsh, an English language arts teacher who is committed to student-centered pedagogy, wanted to see if discussions of literature, usually held in small-group or teacher-led classroom formats, might prove more engaging to students if moved into the chatroom environment. At the same time, having noticed some students' reluctance to participate in face-to-face discussion, he hoped that by doing it online they could get around the "problematic dominance" that inevitably obtained in the classroom

environment. In short, the hope was that students would feel more free and comfortable expressing themselves about literature through chatroom interaction.

To test this, the study was conducted as follows: 1) students were asked to read certain texts; 2) join designated chatroom discussions to share reactions to what they had read; 3) print the resulting online scripts; and 4) submit them to receive credit for having interacted with both the text and with one another. When the experiment was over, the student data were collected and analyzed. The findings proved to be not nearly as simple as the directions, nor was the researchers' "thesis" as evident as hoped for. Albright, Purohit, and Walsh (2002) report the project "initially went well," that it was received with enthusiasm and that participation was high. But it was not long before the research team began to experience some unsettling feelings, particularly once they were forced to question their own place within this rich yet private facet of their students' lives.

> Essentially, we were colonizing an aspect of youth culture to accomplish goals that were not the students' own. At the time we may not have fully appreciated how students would respond to steps like ours, in which we as teachers and researchers lurk and meddle in students' online lives. We hoped to make schoolwork more relevant. But we might have also disrupted a medium that otherwise exists outside of and even resists formal schooling. (Albright, Purohit, and Walsh, 2002, p. 696)

Various elements of what the researchers encountered while reviewing their students' "cyberspace" exchanges created in them feelings of "appropriating an aspect of our students' youth culture" (p. 695). First, they felt they were encroaching on their students' world. Small factors such as being privileged to see the students'online identities—online names like QtAznBoi (cute Asian boy), LilAzNnicBOi (little Asian nice boy), and Tigereyes—were one of the first things to make them feel they were culturally trespassing. (While these names were altered slightly by the researchers to ensure anonymity, they still retained the flavor of the descriptors students used.) Second, the research team ran up against the informal and private nature of online language ("not so borin n e more" . . . "told u its not bad"), which read almost like a code or shorthand compared to the more formal style of writing students used in their literature response journals. Third, while Albright, Purohit, and Walsh noted positive aspects of the online

discourse, including instances of cooperation and self-monitoring, they questioned if that would have been the case if they had not required paper copies of the student scripts. Finally, the research team was also surprised to discover that as the students became used to the electronic format for the assignment, they moved into the "initiation, response, evaluation" (IRE) model frequently used in classroom settings, with one student assuming the role of teacher in the electronic domain. In effect, it seemed that by knowing they would be evaluated on their chatroom exchanges, the students adopted online discourse patterns that imitated traditional classroom discourse models.

Albright, Purohit, and Walsh also discovered that their basic assumption, "that the [student] work would be markedly different because [it] would take place outside of school," that is, through chatrooms and through using online resources, and "that students would create or generate new forms of language and new kinds of questions about topics [in their responses to] young adult literature" (p.659) as a result, did not prove out. Instead, student comments about the literature were "unremarkable" and showed little evidence of "different" or "new" levels of critical thinking or text engagement. In other words, the main rationale for the study was called into question. I was intrigued with the results of the Albright study at the outset of my own study as I knew that Lorraine and I, too, would be attempting to enhance student engagement with text through using technologies in ways that seem to appeal to and motivate adolescent learners. As we made our way forward with our student participants, we found that we, too, experienced unanticipated results. I will discuss these results further in Chapter V.

Albright, Purohit, and Walsh's conclusions regarding the performative nature of chatroom exchanges are, in some ways, similar to those drawn by other researchers in this area. That is to say, they also found that students assumed certain stances and identities depending upon the other students involved in the discussion. Albright, Purohit, and Walsh note that "the performative nature of literacy revitalizes the notion of the body as a social machine, a social creation" (p. 703). Their key point here is that by virtue of the classroom being a social environment, it is the social considerations that ultimately shape how students behave, respond, and interact in literature exercises. In this regard, their

conclusions agree with related insights from Dewey, Rosenblatt, Bahktin, Gee, and Lewis. When adolescents are involved in classroom literary interactions, whether these interactions involve technology or not, it is ultimately the social dynamics that govern student levels of comfort and engagement and learning.

CHAPTER III: METHODOLOGY

> "What would it mean to look *at* a classroom or a school rather than looking *for* something that might be found there? Does it mean just factually recording what we see and hear like a camera or a tape recorder? Of course not. There is no such thing as an innocent gaze . . . we look and see with the language and concepts we possess. We also look through eyes that have seen before, that have a history" (Jackson, P., 1990, p.163).

Research Design and the Role of the Researcher

There is no such thing as an innocent gaze. I was drawn to Jackson's quote because of this one sentiment, this brief, almost poignant expression of a universal "truth." And, perhaps too, because my own professional self-regard was piqued: after all, you would like to think that, in your own case, you can call up the innocence—the clear conscience, the open, unbiased, historic-less mind. A Lockean *tabula rasa*, a clean slate on which your observations can be impressed.

Of course I do not, no more than anyone else does. Feurbach's famous dictum that "you are what you eat" can be turned slightly to say, your views are what you read. The acts of "looking" and "seeing" are biased by language and concepts—of the everyday kind and the rarefied varieties—and by experience. "Experience" encompasses direct contact and the influence of media. The crux of Jackson's statement is that we do not come into a classroom capable of impartially and objectively "looking" and "seeing." We cannot do something as simple as look "at" because we ourselves carry experiential and intellectual biases that color our views. So, we look "for"—we look for things we expect to find, things to confirm our expectations. A popular term today for this type of phenomenon is "programmed." We are programmed to look in certain ways.

In looking back on my ten years of teaching, I can see that my experience bore out to a large extent what Jackson said: I did spend my time looking *for* certain things in my classroom, especially at the start of a new year. What were they? In general, I would say I was looking for the signs and cues that collectively signaled the classroom dynamics to expect—in short, visible evidence of certain student types or personalities, behaviors, pecking orders, interactions, reactions, results, and so on. They would

corroborate for me (once I saw everything) my expectations regarding the way a year would go with a particular class. What I was looking for—I realize as I look back on that time—were the markers that would reaffirm to me my preconceptions. In retrospect, I can see that while I enjoyed classroom teaching, and while it was very rewarding personally, my outlook each year, each day, was also predetermined—true, a strong word—by what I brought into the classroom, that is, by my intellectual and social conditioning. I rarely had or took the time to slow down so that I could simply look *at* "things," freshly take in the adolescent life around me on its own terms, not mine. Time was of the essence; time was usually in the way.

Who I Am

I deliberately treat under one heading the topics of "research design" and "role of the researcher" because I cannot find a way to separate the two. I chose to conduct case study research because of who I am *now*, a doctoral student and university researcher, and because of who I once was, a middle school reading teacher. I am a little wiser today, more seasoned professionally, more critical intellectually; as a person, I am also very highly motivated to do research that is meaningful to me and to those who I view as its beneficiaries. The idea of a study involving a group of middle grade students was congenial to my temperament and research interests. Furthermore, the characteristics of case study research—namely, in-depth descriptions of human interactions within their natural setting, and the perspectives of the participants (Gall, Borg, & Gall, 1996)—were similarly attractive to me and influenced me to select this research model. It lent itself both to the intent of my study and to my preference for a more personal role in the effort.

A few more words about myself: I am the third in a family of four girls, no brothers, two horses, a calf, some rabbits, several dogs and cats, and a mother going for her doctorate in education during my youngest sister's adolescence. My middle school years were spent growing up on a farm, with plenty of space, and with views of woods and hills from every window in our house. It is obviously hard to recall it in any detail any more, but my overall recollection is of a time that was fun, full, and exciting (for my generation, the 1950s did seem better, "halcyon" as historians say).

I married when my youngest sister Lucy was thirteen and shortly thereafter I had the first of my own three children. All together, I had a daughter and two boys. Their adolescence was an eye-opener for my husband and me as parents. The name of the game was to survive. We did. All in all, this period was busy and exciting for us, as well as challenging. Yet, you would never trade away the countless adventures and achievements your children involved you in—birthday parties, piano recitals, soccer games, baseball tournaments, homework assignments, classroom projects, motor-bike races, friendships and spats, cool clothes and gear, and on an on. I enjoyed it. I enjoyed playing catcher so that one of my sons could practice pitching, or taking in a play with my daughter. Or teaching the last one how to drive. If there is one point I should be sure to make, it is that I had an extremely close relationship with my three children as adolescents. I did things with them; I was cool enough for them, and for their friends (very important). We shared feelings. We laughed and cried together. They came to me for help. They also came to me to help. And the kind of love and affection I had for them, I also had for their friends, for adolescents in general.

It was in the middle of my children's early teen years that I began teaching 6th through 8th graders. I liked and still like this age group. I find middle school students to be perceptive and engaging, mischievous and serious, wickedly and touchingly candid, and some to be just so "full of it" they are especially lovable and unforgettable. No matter what the academic, social, and cultural forces beginning to press in on them, they somehow manage to retain and exude freshness and innocence, openness and trust, energy and spirit. And this is true, I found as a teacher, even for those whose lives have not been easy, the ones who especially need you. When given the chance to share their thoughts, their views, their likes and dislikes, I have found they had a lot to say, a lot we should listen to. In general, I find this age group far more positive and far "deeper" than the stereotypes we see portrayed in the media and the impressions many have through limited contact with them. I am sold on them, I am a fan of these children.

My Role as a Researcher

With regard to the self-portrait given above, several points related to my role as researcher should be mentioned. First, although I felt my experience with and my affinity for middle grade students, as well as my ability to communicate and get along easily with them, would benefit me during my study, I also knew it could be difficult for me to maintain a certain degree of detachment. I tend to make my students my friends. Could I be analytical and objective if I became attached to my participants and vice-versa?

Another concern had to do with the "type" of students I had been familiar with in teaching, and even the type that were friends of my children. I taught in two school systems that in each case had socially homogenous student populations. The first of these schools drew students from a low socioeconomic base; they and the surrounding area were decidedly and classically provincial in many ways. Students had limited opportunities to see and experience "life" beyond the borders of the small town and the rural county they lived in. Their views were informed accordingly. The second school had upper middle-class characteristics that had the effect of somewhat insularizing the students from "life" outside *their* environment (for example, life as lived by students in the first school system). The students in this school were well-dressed and well-traveled; they were exposed to everything from fine restaurants to horse-back riding lessons to the conversation of parents and adults from professional ranks. In short, they were socially and culturally privileged. But beyond possessing a sort of tourist-perspective and superficial awareness, they had had little "real" experience of or interaction with people from other cultures and lower social strata.

I should note, too, that in both school systems there was a 95% Euro-American student base, and that neither as a result had any appreciable cultural, racial, and ethnic diversity. So, while I had had extensive experience in two middle-school settings, it was at the same time limited to certain socioeconomic student populations. The question for me was whether this would limit my ability to understand the more diverse student participants in my study.

A third area of concern for me was the fact that one of the technology resources I chose for the study was a web site I had helped create. The web site is called *Literacy Junction*. I decided to use Literacy Junction because it includes features considered to encourage the most effective technology-enhanced instruction today (Harris, 2001; Means, 2001) and was therefore an appropriate resource for the study. However, I did have to remind myself whenever the students were critical of the site that I was not studying the appeal and/or functionality of what I had helped create, only the effects such a web tool might have on literature engagement and classroom interactions.

Participants and Sampling Techniques

I conducted a multiple case study that included 8th grade reading teacher, Lorraine Hampton, and five of her students. The sampling for the study was purposeful. Lorraine is an experienced, high-energy teacher (by her own definition) who invites new teaching approaches and opportunities. These traits I felt would be beneficial to have in my study partner. I also selected Lorraine to participate because although she had extensive classroom experience, she did not have—as she admits—too much technology experience. Lorraine, like me, did not grow up with computers, and she was still learning about them. It is one of the reasons I asked Lorraine to be the teacher participant; I was interested in observing as she continued to make the transition from being a strictly print-based reading teacher to one who is integrating technology—a challenging transition that I had gone through myself.

At my request, Lorraine agreed to choose a cross-section of five student participants who would have some degree of diversity. My hope was to have a social and academic cross-section similar to what Lewis (2001) put together for her study. As noted earlier, Lewis' purpose was to "understand the ways that the literary culture of a classroom is created within the interwoven social contexts of classroom and community" (Lewis, 2001, p. ix). Thus her purposeful sampling of student participants, whom she referred to as her "focal students," included five students from 5th and 6th grades who were selected by their teacher so as to have a mix of socioeconomic background and academic ability. In keeping with Lewis' model, I had Lorraine also select a mix of male

and female participants with varied levels of interest in reading, in reading ability (as indicated by standardized yearly assessments), and cultural and socio-economic backgrounds. At the outset of my study, I expected to find congruencies with Lewis' data in terms of the social patterns/dynamics within the classroom discussions of literature. At the same time, I expected there would be differences between the two in that my study was designed to assess the impact of technology on literacy activities, a consideration absent from Lewis' study.

Ethics

There were ethical considerations to take into account. As Soltis explains, "description is not neutral. It is the interpretive result of an interpersonal engagement with others" (p. 253). It is this "engagement with others" that requires the qualitative researcher to be aware of ethical implications. Since my study was taking place in a middle school and the students were the key participants, I wrote introductory letters and letters of permission for my students and their parents/guardians (see Appendix A). In the letters, I explained the purpose of my study, what the students should expect to be doing, and how the data would be used. I assured them that anonymity would be strictly honored, that they could withdraw at any time at their option, and thanked the participants and their parents/guardians for considering my request. I maintained a respectful tone and avoided using any terminology they normally would not encounter. (Appendix B is a copy of the Informed Consent document required by my university.) My hope was that the information and the tone in my correspondence would help to demonstrate the legitimacy of the study to the participants and their parents/guardians.

In general, I attempted to have as little influence as I could on my participants' behavior and responses. Whenever my presence or interaction was unavoidable, I tried to keep it low-key and positive. I also tried to be neutral and objective, keeping in mind Jackson's words (in the opening quote to this chapter) that all eyes see with "a history." On the whole, from when I first stepped into the classroom until I completed my data analysis, I tried to conduct my study with as little intellectual and experiential bias as possible. This is not to say that I operated in a vacuum; my personal views and

experience do, of course, shape me as a human being and researcher. I presented the biographical information about myself so that readers of my study can gauge for themselves if anything in my background seems to affect the study's objectivity.

Methods of Data Collection

I served as participant observer in one of the three 8th grade reading classes Lorraine teaches. Several points should be made about my role, especially in terms of what I was going to look for. First, prior to the start of the study, Lorraine and I discussed the degree of my participation and decided jointly that, much as I would like to take on some of the teaching, it could compromise the research findings. Secondly, since a primary purpose of my study was to examine the effects of using technology in Lorraine's class, I would need the time to observe *her* as she went about implementing it into her routine. It was important to be able to observe which technologies worked for her (if any) in enhancing the students' engagement with classroom readings. It was also important to avoid influencing her in her decision-making and interactions.

Although my study involved only Lorraine and the five student participants, it was conducted in the 8th grade class as a whole. I therefore introduced myself to her students at the outset of the study and talked briefly with them so they would understand the reason for my presence in the classroom. I told them a little about my background as a teacher and about the purpose of the study. For the study, I positioned myself at the side of the room to be able to observe everything and to take field notes in as unobtrusive a manner as possible. As the study progressed, I took a more active role in the classroom interactions. This was particularly necessary when problems with the technology forced us to split the class into two sections, with Lorraine remaining in the regular classroom while I took a group of students to the library computer lab.

In designing the study, I took into account the proxemics (LeCompte & Preissle, 1993) of the class—that is, the students' use of space as well as Lorraine's design of the layout of her classroom—because I recalled how crucial the arrangement of space and placement of students was to my own effectiveness as a teacher. I knew there needs to be a "flow" to a classroom, and that certain students should be separated from their closest

friends from time to time in order to minimize social distractions. In respect to this last point, I realize it is an effect of my experience in the classroom, my "history"—or the Jacksonian way I (and Lorraine) looked *for* and expected certain things—but also realize it is part of what informs my researcher role. I decided against videotaping the classroom sessions because I felt it might have a distracting effect.

At the close of each session, Lorraine and I shared our thoughts about how everything went. In addition to the value of exchanging information in this way, it allowed me to check how my perceptions compared to hers. As Patton (1990) explains, this kind of triangulation (in the form of member checking) provides a useful means of understanding the nuances of classroom interactions from the emic perspective. I anticipated Lorraine and I would occasionally "read" classroom events differently, and so I looked forward to hearing her "take" on the social and academic interactions in the classroom.

I began and closed my study with audiotaped, in-depth interviews with Lorraine and the five student participants. I interviewed them individually to avoid having anyone influenced by peers in a group format (something I have often seen as a teacher). Candidness was the goal. In my interviews, I followed what I viewed as the principle behind Kahn and Cannell's (1957) description of interviews as "conversations with a purpose." The tone of my interviews was thus informal and friendly—I wanted to be sure they were not viewed as interrogation sessions. (At the same time, the interview process I used did elicit the information I needed.) I also had interview guidelines for myself—my interviews can be categorized as nonscheduled, standardized (Denzin, 1978) in that all of my participants responded to the same general set of questions, although the order in which I asked them varied depending on the students' responses. I also tried to be flexible in terms of giving students opportunities to expand on their thinking and to explore related topics that were important to them.

A substantial body of data for my study came from the student-generated Web products. I analyzed them with Lorraine and discussed with her how they compared to student-generated products derived through her traditional teaching methods. I also asked

the student participants to comment on the products they produced during the study. I was interested in their perceptions of the quality of these products vis-à-vis the work they produced without using technology.

Finally, on an ongoing basis I recorded my observations, impressions, and interpretations during the study in a researcher journal. I started this journal upon my first visit to the Meadow Brook Middle School. It came to have two functions for me: first, it gave me a way of recording my immediate personal reactions in addition to my ongoing thoughts; second, in a setting that for so many years had been "home" to me, I was now merely a researcher, an outsider. This sometimes produced feelings of what I can only characterize as displacement. The journal helped me deal with these feelings.

Data Analysis

On an earlier occasion I conducted a pilot study regarding the use of technology resources in adolescent literature instruction. Two points might be mentioned in regards to it: on the one hand, the experience I gained was very helpful. I acquired some good practical knowledge about conducting research and analysis. To take one example, at the end of each classroom session I recorded observer comments into field notes and "memos to myself" in my research journal (Bogdan & Biklen, 1998). This practice I found useful in keeping a running commentary that captured the immediacy of the study proceedings.

On the other hand, I should note too that I would have preferred starting without the experience of the pilot study. I was mostly concerned that it could in some way affect my upcoming analysis. For instance, I felt I might start looking for certain themes to emerge while analyzing the data from my current study.

On the whole, though, the experience from the pilot study wins out as a positive. Eisner (1998) says researchers need to "cultivate" their perceptions so as to be able to observe what is happening on the surface and record it accurately (before going on to explore any underlying causes and reasons). This kind of skill to me is, at bottom, the result of an iterative process, a function of time and experience. The pilot study helped me in that regard—it put me to work in my field. As a result I was more knowledgeable about what I was attempting in this study, as well as more prepared and efficient.

In respect to analyzing the findings, the advice of experienced researchers is patently invaluable. LeCompte and Preissle (1993), for instance, recommend the constant comparative method (Glaser & Straus, 1967) of data analysis as a "flexible means" of generating social theory. Another useful recommendation, described by Glaser and Straus, is that of sorting and categorizing the data on an ongoing basis. I followed the advice by organizing my data on a weekly basis. I also periodically referred back to the resources I noted in my literature review to help maintain a critical and "annotative" view of the process. In other words, I now and then looked up some of the research in order to lend more insight to what was taking place. I revisited my original theoretical framework, too, to make appropriate adjustments as I proceeded with the study. My research questions focused on Corno and Mandinach's framework for cognitive engagement with text (including stages of planning, connecting, and selecting), and Vygotsky's interpersonal and intrapersonal social learning constructs. I used these established theories as the basis for my data analysis, examining each student participant's reaction to the technology-enhanced reading activities in terms of levels of cognitive text engagement and interpersonal and intrapersonal learning (see Appendix C). Finally, I felt free to follow leads and to allow for the "productive serendipity" that marks inventive research (Eisner, 1998).

Validity and Reliability

I discovered during my study of qualitative research methods that the concept of validity (regarding accuracy, usefulness, and generalization) varies somewhat from one researcher's perspective to the next. This is particularly true in limited-number, case-study research. Regarding this form of research, questions do arise as to the purpose and usefulness of conducting studies in such an intensely focused manner and on such a small scale (Bogdan & Biklen, 1998). In my study, for instance, there were only six participants, it took place within one classroom setting, and extended over a relatively short period of time. It is understandable, then, why a study like mine could be questioned as to its usefulness for a larger audience, and its ability to inform practice beyond similarly narrow settings.

Several things can be said in defense. First, such a confined arena is typical in case study research and is suitable for its purposes. Secondly, as with most case studies, the intent of mine was to be descriptive in nature, generative and interpretive rather than verificative (LeCompte & Preissle, 1993). I do not attempt to offer transferable truths about human nature through it. What I offer is "an account of the truth about an objectively described state of affairs" (Eisner & Peshkin, 1990, p. 97) in one particular setting. I attempt to present an in-depth and objective description of participants and their interactions during a research study that has a specific goal—namely, to observe and assess the possible cognitive and social effects of adding a technology-enhanced literature component to an eighth grade reading class. My study is presented as an instance for others to read and to consider. Everything is affected by the parameters of my localized setting, and by the selected technology resources, the specific activities, the rules, and my very unique set of participants. My study admittedly addresses only a circumscribed event.

Does this detract from the validity or usefulness of its findings? I do not believe so. Philosophically there are viewpoints that have a useful experiential wisdom and rationale for those of us going into such “small” studies. As Geertz (1973) says, "it is not necessary to know everything in order to understand something" (p. 20)—that kind of belief provides a needed intellectual credo sometimes. It is like a pat on the back. Or when Sumatra (1993) similarly notes that it is first helpful to understand the "truth of the particular" in order to understand the whole—*that* is inspiring to me. It tells me what I am doing is important. After all, William Blake saw the world in a grain of sand.

I believe it is the purpose of small-scale studies to study small events precisely. The degree to which a researcher can richly and accurately describe them gives us all potentially an understanding, a truth. Even though a study may only deal with a particular situation, its truth is inviolable nonetheless. Or as Marshall and Rossman put it, it will be "so embedded with data derived from the setting that it cannot help but be valid" (1999, p. 193).

The question of subjectivity is a concern among qualitative researchers, too. Among their ranks, there is a self-proclaimed goal of achieving what Eisner and Peshkin (1990) call an "objectively described state of affairs." This is, of course, needed. But, I have the following questions in turn: Is there ever in research true objectivity? Is subjectivity incompatible with truth or validity? These questions are difficult to answer. Objectivity is obviously crucial if findings are to be taken seriously; but subjectivity may have some value, too. I will take each one—objectivity and subjectivity—one at a time.

There are ways to conduct a study so as to neutralize subjectivity as an issue. One is to abide by standards of objectivity. I believe I tried to conduct my study objectively by following the recommended practices for designing, implementing, and monitoring a study, and collecting and analyzing its data. I described my personal history in the study in order to give my readers an opportunity to consider whether it had any effect on my description and findings. I also tried to neutralize any subjectivity by, among other things, triangulating my data sources—collecting data from field notes, interviews, and my analysis of student Web products (document analysis)—and by corroborating what I observed through periodic member checks with both Lorraine and the student participants. Eisner (1998) discusses this type of triangulation as structural corroboration or "the recurrence of multiple sources of evidence to support a conclusion" (p. 55). I view it as improving the odds for coming closer to the truth.

Now for the place of subjectivity. Another school of thought comes from Wolcott (1990) who suggests getting away from a preoccupation with validity as much as possible and looking, instead, at our collective efforts as qualitative researchers as "a slippery old nut like understanding" (p. 148). To me this means that what we observe and record is, in fact, a valid representation of the events. It is our understanding of it. Wolcott calls for qualitative researchers to record accurately, but at the same time to appreciate their subjectivity as a strength that can enhance understanding, inspire richer interpretations, and serve as a model for others to follow. He sees validity as a “lure” from the main purpose, a lure to get someone to attend to verification of facts while "ignoring the fact that for the most part, the facts are already in" (p. 147). I agree. The facts are already

there in any given research setting. I believe the researcher must render the facts accurately and appropriately, but without completely sacrificing his or her history and vision, insights and intuitions. This was what I attempted to do in my description and analysis.

CHAPTER IV: CONTEXTUAL FACTORS—THE SETTING, THE PARTICIPANTS, THE PLAN

Introductory Remarks and Overview of Chapters IV and V

To introduce some of the contextual variables inherent in my research, I open Chapter IV with a description of Meadow Brook Middle School. Such a description establishes both the physical setting and the cultural landscape of the study. Next, I present detailed descriptions of the study's six participants. I begin with Lorraine, who described her teaching style at one point as that of a "a benevolent dictator." As Lorraine could be considered a second determinant of the cultural landscape of the study, I asked her permission to share those facets of her life that I believe influence how she engages her students in literacy learning. Lewis (2000) views the teacher's influence on the local or "temporary culture" of the classroom as one of establishing the "degree of normity in terms of what is expected, accepted, and valued" (p. 12). Lorraine is a good case in point. She is a teacher with a strong presence in the classroom, a teacher whose own personality, history, and beliefs had a distinct and definite effect on the direction of the study.

I follow my portrait of Lorraine with descriptions of the five students she chose for our research experience. The student portraits include self-descriptions from the initial, taped interviews (see Appendix C), Lorraine's personal impressions, the background information Lorraine supplied, and my own observations. In keeping with Gee's (1999) point regarding situated identities—that people "self author" according to the context—I close with my own interpretation of the students' situated identities (i.e., the identities they were projecting in response to me, to Lorraine's initial description of the project, and to the fact that they were in school at the time of the interview). The titles I have chosen for the students' "situated identities" are not direct quotes from the students, rather they are drawn from the data Lorraine gave me as well as information the students were willing to share. I refer to these "situated identities" as "self-authored" in that they are grounded in what the students wanted me to know about them.

Next, I present and explain the activities Lorraine used to engage her students in reading the young adult novel, *Holes* (Saccar, 1999). Some of these activities were

technology-enhanced and some were not. Lorraine is a firm believer in differentiated instruction and wanted technology-enhanced options, but did not want the technology to dominate the activities. Prior to the start of the study, we therefore discussed what would be most useful to me but would also not interfere with her normal instructional style. She did not want to interrupt the teaching and learning patterns she had established by suspending many of the activities the class was accustomed to. I was pleased with this suggestion as it meant the study would represent Lorraine's authentic approach to teaching and would not involve pulling her into territory that might prove counterproductive to her or to her students. She was willing to use technology and I was willing, in keeping with the intent of naturalistic research, to have her use it in whatever way was most comfortable and customary. We agreed on offering a variety of options so that we might examine the effects of technology-enhanced activities in concert with non-tech-enhanced teaching methods she has used regularly and successfully in the past.

Following the descriptions of the setting, the participants, and the plan for classroom activities in Chapter IV, I then discuss the themes that emerged from my review and analysis of the data in Chapter V. Specifically, I examine the effects of adding technology to adolescent literature instruction, both on cognitive engagement with text and on social learning.

When developing data categories and themes, Bogdan and Biklen (1998) remind researchers that it is beneficial to ask, "are you interested in the minute details of interactions or are you concerned with more general social processes?" (p. 159). I began by reviewing my data - the interviews, field notes, student products, casual conversations with participants, observations of communication that occurred within the classroom and outside of it as well – all the "minute details of interactions" that Bogdan and Biklen describe. I next sorted these data into two broad categories: one representing instances of cognitive engagement and one representing what I would describe as social learning. While there is some overlap between these categories, they do represent the natural division in the "more general social processes" underlying the study. Separating the data in this way allows me to more clearly present my findings, including the many themes that emerged as I examined and reviewed my experience in light of my research focus.

The Setting

My first visit to Meadow Brook Middle School took place in the springtime, on a bright blue morning in the academic year that preceded the beginning of my study. I recall enjoying the half-hour drive away from the university where I work. The land surrounding Meadow Brook Middle School was farm country in the past, tobacco farm country. Scattered across the now-dormant fields, I noticed a few older farmhouses with rusty tin roofs and wide front porches. I could picture the porches serving as comfortable gathering places on warm summer evenings. These were homes built well before the days of air conditioning. Some were shaded by slat-sided tobacco drying barns whose crumbling walls, overgrown with weeds, were fast becoming indistinct from the surrounding countryside.

As I approached the school grounds, I passed a number of brick-gated entrances to new housing developments. Each entranceway held a sign with the name and price range of that particular set of homes: *Hunter's Ridge,* $250,000 - $350,000, *Meadow Haven,* $350,000 and up. It was evident that this part of the county was an area in transition, an area directly affected by the growing cluster of technology-rich companies located within easy commuting distance. Certainly the new homes, with their carefully tended lawns and stylish modern architecture, signaled prosperity. But there was also something I found disturbing about their seeming perfection, something that made me wonder what it is we lose when the insurgence of modern technologies alters the landscape of what we have known.

Finally, down a newly-paved stretch of road, I came to Meadow Brook Middle School and its sister school, Meadow Brook Elementary. The entrances to the two buildings face each other and are divided by a grassy walkway that crosses a matched pair of parking lots. They are one-story brick structures with forest-green woodwork and many windows. They are handicapped accessible. They are modern.

Lorraine was in her prep (preparation) period when I arrived. For those who have never taught in a public school, it is hard to describe how precious this block of time can be. It is a time, usually ranging anywhere from 45 to 60 minutes, officially allotted to teachers so they can grade papers, prepare for classes, meet with colleagues, return phone calls to parents, make copies, and keep up with daily mail. Unofficially, it is also a time

to use the bathroom (sometimes after teaching two back-to-back, 90-minute classes), have a quick cup of coffee, and generally catch a breather in a typically hectic day. I appreciated Lorraine's willingness to spend this time with me. By way of thanks, I brought a sandwich from a nearby deli for the two of us to share during her lunch period.

First, Lorraine took me on a tour of the building. As we walked the four long hallways branching out from the central office area, Lorraine explained the school's layout and the nature of the Meadow Brook community. Three of the main hallways are dedicated to grade-level classrooms (6^{th}, 7^{th}, and 8^{th}), while the last leads to the cafeteria and school stage. The school was designed to house the three grade levels in such a way that each would form a smaller community within the larger community of the school. Classes are run in block-scheduling format, with teachers being responsible for three 90-minute teaching blocks per day. I was surprised when Lorraine told me that the teachers accompany their students to the cafeteria at lunchtime. A teacher's lunch break is traditionally about as precious as her prep period, a time for getting lots of little tasks accomplished. Lorraine said that eating with the students was "okay . . . not a problem" and that in terms of discipline, having the teachers in the cafeteria with their students was generally very helpful. She said there were fewer lunchtime incidents at Meadow Brook than in the schools where she'd taught in the past.

"It's not the most relaxing time . . . not great for the digestion," she laughed. "But they sit at their tables and we sit at ours and we just keep an eye on them. It's a little hard to carry on a conversation with anyone though," she admitted. "It gets pretty loud in there. You'll see." As Lorraine and I headed back to her wing of the building to pick up our lunch, I asked her about the use of technology at Meadow Brook.

"Oh, it's great here. Each teacher has her own classroom computer with an Internet connection. There's a technology lab for our Tech Ed classes and our lab teacher is just super. She teaches the kids new software . . . new ways of using technology. The kids seem to like that class. There's also a general computer lab in the 6^{th} grade hall near the office that we can sign up to use with our kids. The library has a back area with a bunch of computers too . . . I think there are about a dozen in there we can use. But my favorite is the wireless cart. The kids love when I bring the cart in. In fact, I just signed up and used it last week."

I asked Lorraine if there was much competition for the wireless cart and she told me there hadn't been yet.

"This is a brand new school . . . a brand new teaching job for a lot of our people. We have quite a few first year teachers. They're just getting used to teaching. They're not thinking about how to use the wireless cart just yet." Lorraine laughed. "Next fall, when you're in for the study, we may have more competition for the cart. People have to get comfortable with their teaching before they'll add technology."

After our tour of the building, we went into Lorraine's classroom. I was immediately struck with the clear evidence of her organizational strategies. A table along one wall held crates with colored-coded student folders. Student products representing various learning styles (i.e., artwork, essays, printed multimedia presentations) from the three classes Lorraine teaches decorated the walls. The white board at the front of the room was marked with a daily agenda in Lorraine's careful handwriting. There were also class-by-class calendars, lists of homework assignments, and a cork board section cluttered with newspaper clippings. The clippings, Lorraine explained, related in one way or another to different aspects of what she was presently teaching and to the home lives of her students in many cases too. Lorraine's desk, while covered with papers, was also neatly organized. The papers were in careful stacks and many of the stacks lay in plastic divider trays. There was a vase of fresh flowers on the desk, flowers that Lorraine told me she had brought in from her garden at home. In one corner of the room, Lorraine had a shelf of paperback books for her students to borrow and read. The range, in terms of both reading levels and topics, was extensive and spoke to me (as a former-reading-teacher) as the sign of a teacher dedicated to accommodating differing student interests and needs.

Lorraine and I soon headed to the cafeteria. We sat with some of her teaching colleagues and one of Meadow Brook's two assistant principals, Ms. Francis (a pseudonym), an African-American woman in her early thirties. Lorraine later told me this was Ms. Francis' first year in an administrative role. The noise level in the cafeteria was high and the teachers, although friendly, were mildly distracted for the entire half-hour lunch period, monitoring the student tables and keeping an eye on their watches to be sure they finished their meals before it was time to start their next classes. As I watched the students jostling each other and laughing, spilling milk and sharing lunches, I found

myself revisiting the reality of a teacher's day, recalling the state of semi-alert and the rigid schedule I had lived under for many years.

Ms. Francis, who seemed less distracted by the cafeteria din than the teachers, offered some facts about Meadow Brook as we ate lunch together. The student population stood at approximately 620 and Ms. Francis did not project much of a change in that number for the following fall when my study would begin. The majority of families were White, of European-American descent, and from the middle- to upper-middle-class socio-economic range. Less than 8% of the student body were entitled to free or reduced-cost lunches. In terms of diversity, Ms. Francis mentioned that 12% of the population came from what she described as "minority cultures." She went on to explain that 10% of the student body were African-American and that the remaining 2% of students from minority cultures included "a mix of Asian and Hispanic kids."

I asked about family support for the school, how Meadow Brook and the outlying community seemed to get along. Ms. Francis spoke quickly of the "wonderful families" and high level of interest the parents had in the school. "Most of our parents are college graduates and they expect the same for their kids. They want their children prepared for college and they want them put in the highest track at the high school. There's not much criticism of what we do. Mostly, we get praise and support. We also have a very active PTSA (Parent Teacher Student Association) which raises money for our school activities. There's even a group of parents planning to provide homemade lunches for the teachers once a month next year." To me, the prospect of homemade lunches arriving in the middle of the day suggested households in which one of the parents might not need to work. Of course, with tele-commuting on the rise in the local work force, it was also possible that one parent might be working from home and therefore able to break free in the middle of the day to bring a lunch over to school. In either case, I sensed a strong element of family support, of home-to-school connections.

I next asked Ms. Francis how the students from different cultural backgrounds related to one another, if she saw any problems in that regards, but she didn't answer immediately. Lorraine, who had been listening to our discussion while keeping an eye on her students, leaned over at that point and told me "the Black community is very tight here." I asked Lorraine how she related to that community and she responded, "I see

myself as a coach. I have good rapport with the Black kids. They know I care about them and they'll come in and talk to me about whatever might be bothering them. I'm okay with them." I wondered how Ms. Francis, being African-American herself, might react to Lorraine's comments. She pointed out that racial tension was not a problem at the school, but that Lorraine was in a stronger position to speak about the day-to-day student relations. Just before the bell rang, Ms. Francis stood up to leave and shook my hand. "You've picked a wonderful teacher to watch," she told me with a warm smile. "Lorraine is the best. She teaches us all."

The Participants

Lorraine, The Teacher and The Person

I first met Lorraine when I was conducting a writing workshop she was taking. As the workshop participants introduced themselves, I was immediately drawn to Lorraine for her candor as well as her outgoing personality and ready sense of humor. Here was a teacher of about my age who enjoyed working with young adults and young adult literature as much as I did. Lorraine, I soon learned, had always lived and taught in the South and was a devout Christian. I, on the other hand, had lived and taught most of my life in the North and was not affiliated with any church or religion. But as the workshop progressed, I could see that our appreciation of the role of literature in the classroom easily bridged our differences in culture and background.

I next encountered Lorraine as a fellow student in a graduate class we were taking together. We sat beside each other that semester and began to cement the friendship that had begun during the writing workshop. Once again, I witnessed Lorraine's candor and humor in class as she openly shared stories from her personal past (her history as a child, a wife, and a mother) as well as her professional past (her history as a teacher). Lorraine, I discovered that semester, is a natural storyteller. I was intrigued when she told us how she uses stories from her life, the positive moments as well as the moments of frustration, as a basis for critical comparison when she and her 8th graders examine the experiences of favorite literary characters.

My third encounter with Lorraine came when she enrolled in an Internet-based graduate class I was teaching. There were no face-to-face interactions this time; this was a distance-learning class with all communication occurring online. But I, of course,

already knew Lorraine well. Reading the assignments she posted to the class web site each week, I could picture her red-blonde hair, her quick and engaging smile, and her light blue eyes that she once told me "don't miss much," whether with her students, her graduate-school peers, or anyone else.

As Lorraine was a unique participant in my study, the only teacher involved and a strong force behind many of the decisions that were made, I present her portrait in as much detail as possible. To the extent that anyone's subjectivity - that is, the distinct blend of cultural and personal history, physical attributes, talents, ways of thinking and reacting to the world (Cazden, 2000; Gee, 1999; Lather, 1991; Fish, 1980) - can be put into words, I will attempt to describe Lorraine at the time of the study. The information that follows about Lorraine is taken from multiple sources. These sources include: a taped interview conducted at the beginning of the study (see Appendix D); my fieldnotes and casual conversations with Lorraine; a journal Lorraine kept throughout the study; a short biographical piece Lorraine wrote for the Internet-based class I taught; and documents Lorraine shared with her students and their parents. I present my description of Lorraine using the following categories: her personal history; her history in the classroom and her teaching philosophy; her views on the use of technology in education; and her multiple life roles and responsibilities. I close with Lorraine's comments regarding the students she selected for the study. These comments are summarized in a grid (Table 1) she developed to present the student information to me.

Personal History

If I were asked to thematically categorize what I know of Lorraine Hampton's life, two "themes" seem to stand out - her ability to adapt to change, and her tendency to make meaning of life's circumstances through reading. In a memoir entitled *Shipwrecked and Salvaged* that she shared with me, Lorraine wrote openly about a childhood riddled with "uncertainty and chaos." Lorraine's mother died when she was three, leaving Lorraine, her older sister Anna, and her brother Michael in the care of their alcoholic father. Lorraine's father remarried but the "new mother," who had three sons of her own, refused to cook or care for Lorraine and her siblings. Lorraine's father continued to drink heavily and her sister Anna left home at the age of seventeen. The upshot was that

Lorraine and her brother were left with a stepmother who didn't care for them and a father who was "drinking and distant" much of the time.

The first "port in the storm of childhood" for Lorraine came through reading. She devoured the stories in her primary school reader, and especially enjoyed stories about Dick and Jane and their happy family life. Another favorite storybook character for Lorraine was a little squirrel that lived in a tree house with its mother and father. "I read those stories and wanted to live in a tree house with my mother and father too," Lorraine recalls. "I wanted a happy home no matter what it looked like." As she grew older, Lorraine continued to use reading to escape the tensions at home. She spoke of riding her Schwinn bicycle to the local library each week, her library card curled up in her pocket. There she spent carefree hours following the adventures of Nancy Drew, "an attractive girl with an ability to help others . . . a girl with control of her life." Through her imagination and through the beguiling storytelling of Carolyn Keene, Lorraine recounted "being able to escape from my world" for a little while.

After enduring many unsettled years at home, Lorraine and her brother finally "ran away" to live with their grandmother. The grandmother was a caring woman and a faithful Christian who took Lorraine's love of reading into the reading of Bible stories. These stories, Lorraine recalls, served as "a source of insight into human nature more than any other literary piece I had encountered." Lorraine remained an avid reader of both the Bible and other literary works throughout her high school years. An advanced reader and writer by the time she graduated, she went on to win a full scholarship to college. It was there that she met her first husband. As Lorraine helped put him through law school, the first of their two children was born. But the stable home life Lorraine had yearned for as a child appeared to be an elusive dream yet again. Lorraine's husband was an alcoholic just as her father had been. After the birth of their second child, Lorraine ended the marriage. It wasn't until years later that Lorraine finally met and married someone who proved to be a strong and stable partner for her.

Throughout the many difficult periods in Lorraine's life, reading provided a critical haven of emotional comfort and stability. "Reading to me means breathing," Lorraine said. Literature, the stories of others, served as a "means of salvation" during those troubling times. And it was in the midst of one of them, during her first marriage,

that Lorraine began her career as a reading teacher. Teaching also proved to be a "safe harbor" for Lorraine as she shared her love of reading with her students.

Today Lorraine can explain why the teaching of reading feels like a "personal life calling" for her. "The gift of providing my students with the ability to make meaning of their lives and their world through literature is the best gift I can offer. I work hard to establish community . . . I share my truths with my students and my personal flaws. I let them know I'm real so I can encourage them to be open and honest too." As they get to know literary characters together, just as she did on her own for many years, Lorraine and her students explore what is most meaningful in their own lives. In Lorraine's words, they "experience the power of stories together."

History in the Classroom and Teaching Philosophy

Lorraine has over twenty years of classroom experience as a reading and English language arts teacher. She has taught grades 6-12, from basic to advanced placement classes, in public school settings and private school settings alike. While enjoying all of her teaching experiences, Lorraine speaks of her 8th graders as being "most special" to her. "They're at a point in their lives that is uncertain . . . transitional (from childhood to young adulthood) . . . vitally important." Lorraine feels teachers need to understand and support adolescent students as they grapple with issues of personal identity both at home and at school. She is acutely aware of the social pressures on her students, the need to "fit in" and "play the game," pressures that are defined simultaneously yet not always identically by their peers and by their culture. For this reason, Lorraine's teaching style is student-centered and as individualized as possible. It is also a teaching style that is cognizant of home expectations. Lorraine is committed to getting to know each student as a "whole person" and keeps in close contact with her students' parents and guardians through letters (see Appendix E) and email messages.

In keeping with her determination to individualize her teaching approach, Lorraine's pedagogy is accordingly marked by a dedication to differentiated instruction and to accommodating multiple learning styles and preferences. She is enthused about the addition of technology-enhanced activities because they provide a new means of motivating kinesthetic learners, as well as learners who enjoy the visual representations and auditory input made possible through multimedia learning tools. Whether using

technology or more traditional teaching methods, Lorraine always runs a "relaxed yet safe" classroom where respect is key to all interactions. She arranges her students into groups of four and encourages them to work cooperatively whenever possible.

Lorraine does not assign seats for her students unless she finds that someone is "being distracted by or distracting" others at his/her table. She is aware of the social hierarchy within her classes, for example, she explained to me that the tables near the windows are where the "populars" usually gather. She is also aware of the pressures involved in being too popular or too unpopular. "In some ways being very popular is just as hard; there's not much room to make a mistake," she explains. Lorraine uses reflective journal writing with her students as a means of encouraging them to express their thoughts freely in case they feel inhibited "speaking their true thoughts" during open class discussions. However, Lorraine also feels that her students have seen her demonstrate the effect of candor, of speaking the truth, and are therefore comfortable of discussing their thoughts openly in most cases.

Lorraine's pedagogical philosophy comes down to teaching "what I think my students need to know to communicate effectively in the world." This includes a strong vocabulary curriculum she has developed over the years that involves learning Greek and Roman roots and affixes. Along with skill-building lessons, students also read and write regularly in Lorraine's classes. Using process-writing techniques, the students have multiple opportunities to edit and revise their work before it is graded. Ultimately, Lorraine wants her students to learn to "write correctly so they will be taken seriously by others." She is mindful of the expectations of the Standard Course of Study in her state, but does not feel driven to adhere to it strictly or exclusively. In terms of the importance placed on test results, Lorraine states, "tests don't worry me. Whether or not the kids are learning worries me. I don't put much value on standardized tests yet I find that my students have always done pretty well on them. I teach 150% all the time. I teach them test taking skills for *life,* not to pass them to the next grade."

Views on Technology in Education

While Lorraine speaks of "using technology often" with her students, she adds, "technology is more of a tool than an answer to me." When I asked Lorraine how she specifically uses technology in school, particularly as a teacher of reading and writing,

she answered, “Mainly for Internet research, particularly research involving the history surrounding a book or a setting. The Web is a great pre-reading resource, but I do have to teach the kids to be careful about the legitimacy of the sites they’re visiting. I have to teach them evaluation skills. But it’s the best way to encourage inquiry learning and it’s also the way of the future. If we don’t keep finding ways to use technology, education’s going to be left in the dust in terms of any kind of relevance.”

I next asked Lorraine if she saw any difference in student products when technology was used. “In some ways, yes. In some ways, no. In terms of the writing the students do, it’s generally better quality, fewer errors, and they have more resources to work with. They do like using computers for writing, especially when the wireless cart is working. It’s motivational for them, particularly the kids who struggle, who don’t like to write. They write longer journal entries on the computers.” I asked if longer equated to better in her estimation. “Well, not necessarily. Length doesn’t always mean better content, but it does improve participation and interest and with some kids that’s a very big step.”

Lorraine spoke about the occasional glitches that occur with technology as “something you learn to live with. When you use technology in school, you have to be ready to have things go wrong.” I asked if Meadow Brook offered adequate tech support when the glitches happened. “Oh, sometimes, but not always. Then there are all of the software changes we have to deal with. Like now, we have Microsoft Works on the computers in place of Claris Works . . . a new program to learn with no training. But we teachers help each other out. We manage.”

Lorraine believes that the posting of assignments to the Web is another excellent use of technology in schools. She spoke of how this weekly practice at Meadow Brook bolsters the kind of home/school connections she strongly supports. In her designated Web space, Lorraine offers in-depth descriptions of class assignments and upcoming class events (see Appendix F). Based on what she has posted, she encourages follow-up parent contact by email or phone. While it might seem that having to post assignments and notices to the Web each week would add one more layer of responsibility to Lorraine’s already loaded schedule, she readily endorses this use of technology in her classroom.

Finally, Lorraine commends the Internet Policy at Meadow Brook that requires parental permission before students are allowed to access the Web in school. She also endorses the school's firewall filtering system that keeps students from accessing questionable or inappropriate Web materials during school hours. In the same breath, Lorraine mentions certain families in the district who are ethically opposed to the Internet and refuse to have "that device" in their homes. Lorraine explains, "This poses a problem when I ask kids to research a topic for homework. I have to make the research optional which gives certain kids the edge over others." I could appreciate Lorraine's point and was reminded of Reid's (2001) discussion of the recent closing of the digital divide, the original accessibility divide that was based on socio-economic factors. I realized that there might be a new divide to consider, a divide involving family ethics and beliefs rather than family income levels.

Multiple Life Roles and Responsibilities

A portrait of Lorraine would not be complete without appreciating the multiple life roles and responsibilities she was managing at the time of the study. The preceding pages described Lorraine's personal history and ability to adapt to the changing demands placed upon her, both personally and professionally. The descriptions also highlighted her generous nature, her willingness to lend a helping hand to colleagues and to extend herself personally to each of the 80-plus students in her charge. At times, this willingness left Lorraine with more than she could reasonably handle in a given day. This now and then came through in her journal in moments of frustration, and occasionally caused her to question the value of adding technology to her already full agenda.

"Too often," Lorraine wrote in her journal after a day filled with technology-related problems, "technology goes awry. When a lesson is without technology, usually all that is needed is a little fine-tuning. But with technology, a snafu means a whole different direction to be taken . . . and sometimes, there just isn't the time."

To appreciate the possible effects of adding technology to class activities, I believe we must keep in mind the daily responsibilities the teacher carries. Again, Lorraine is a good case in point. At the time of our study, she was juggling the following responsibilities at Meadow Brook: Yearbook adviser (a deadline-driven and time-intensive role); School Improvement Team Chair; 8th Grade Language Arts Chair; and

mentor to two novice teachers. She was also taking two graduate-level classes, driving to the local university two nights a week to attend 3-hour class sessions. Along with her school responsibilities and her graduate-work load, Lorraine has an extremely busy home life. Living with her at the time of the study were her husband; her two college-aged daughters; her sister Anna (whose upholstering business is located on Lorraine's property); Anna's son; and a former high school student of Lorraine's who is staying with Lorraine and her family while attending college. As Lorraine explained, "he needed a place to stay so we put together a full time bed for him in the living room." She is unstintingly supportive of the needs of her entire extended family.

Beyond her home life, Lorraine is an active member of her church community and is also very generous with her colleagues at school. In our six weeks together, she baked cakes for two fellow teachers' birthdays, put together a party for her son's engagement, and took care of her sister, both physically and emotionally, as she underwent eye surgery. Amazingly, Lorraine was able to stay upbeat and cheerful throughout it all. She did experience periodic migraine headaches, but she only missed one day of work during the six weeks we spent together.

I do not offer Lorraine as a comparative model for other teachers as they venture into adding technology-enhanced activities to their teaching. Rather, I think it is worthwhile to consider Lorraine's words and thoughts as a realistic representation of what a veteran teacher with multiple responsibilities and a sense of dedication to both her home and her school community experienced.

Choice of Student Participants

Based on the success of the Lewis (2001) study, I asked Lorraine to choose a group of five students representing as much variety within one of her classes as possible. I was particularly interested in a mix that involved gender, cultural history, socio-economic level, reading ability and interest in reading. I was therefore a little disappointed when I learned that Lorraine's classes were homogeneously grouped. This meant that the study would have to involve either a group of students who were labeled "average" or one of Lorraine's two "academically gifted/honors" classes. When I asked Lorraine what that label actually meant to her, she told me that many classes at Meadow Brook are labeled "honors" classes. She explained that Meadow Brook parents want their

students in classes labeled as such and many students in the school score at the 4.0 (highest) level on the Reading End-of-Grade (EOG) tests which is a determinant of being placed in an honors class. “All the kids in the honors classes aren’t academically gifted in my book,” she laughed. “They’re good kids and smart enough, but not gifted. Trust me, you’ll see what I mean.” She assured me there would be plenty of variety within whatever group we selected, so I opted for a class that met at a time that was most convenient for Lorraine and for me.

Once we had agreed upon which class to work with, Lorraine took the first three weeks of school to identify students who might offer the diversity I was looking for. She then gave me the following grid (Table 1) as a snapshot introduction to the students she had chosen.

Table 1. Lorraine’s Initial Descriptions of the Student Participants

Student	Description (Academic and Personal)
1. Kate	▪ European-American, excellent reader, transferred last year from the North, outstanding ice hockey player (goalie), aggressive, conscientious ▪ Writing EOG (End of Grade test): 3.0 (w. 4.0 high). Do not have reading scores but permanent record suggests she is a strong reader. ▪ Father is a writer, mother works in the technology field
2. Ethan	▪ European-American, considerate, conscientious, spelling a little weak ▪ Writing EOG: 2.5. Reading EOG: 172 raw score (4.0). Math EOG: 292 raw score (4.0) ▪ Father works in sales, mother is a marketing representative
3. Naomi	▪ African-American, shy, studious, one older sibling just left for college ▪ Writing EOG: 2.5. Reading EOG: 169 raw score (4.0). Math EOG: 281 raw score (4.0) ▪ Father is retired ROTC officer (career military), mother doesn’t work outside of the home
4. Corey	▪ Bi-racial, laid back, takes path of least resistance, handsome, pleasant, charming ▪ Writing EOG: 3.5. Reading EOG: 177 raw score (4.0). Math EOG: 288 raw score (4.0) ▪ Dad has custody and is an auto mechanic, mother’s whereabouts not given
5. Beth	▪ Filipino, very bright, insightful, work ethic is very strong ▪ Writing EOG: 3.5. Reading EOG: 175 raw score (4.0). Math EOG: 289 raw score (4.0) ▪ Father is an engineer, mother is a registered nurse

Kate, The Student and the Person

Kate is a blonde-haired thirteen-year-old who stands about 5'5," average height for an 8th grader. On the day we met, she was wearing a pair of jeans and a t-shirt that had the words "God First, Hockey Next" written across the back. Her hair was pulled back and she wore no make up. When we were introduced, she smiled and shook my hand, a gesture not always considered cool by 8th graders as I recalled. Lorraine told me she had selected Kate because she is "a good reader, seems to enjoy school," and is "open-minded and confident." She is not someone unduly influenced by peer expectations, or as Lorraine put it, "not needing to please the *in* crowd."

First Interview

As Kate was the first student I interviewed, I was feeling my way in terms of how closely to adhere to the prepared questions. Some of these questions Lorraine had already answered, while others were answered by the 8th Grade Introductory Questionnaire Lorraine shared with me (see Table 2). I ended up using the interview questions as a guideline, but also allowed Kate to go off target a little in order to get a more inclusive portrait. The following excerpt illustrates the flavor of our initial interview.

PC: So, Kate, if someone were meeting you for the first time, what you want them to know about you?
Kate: Well . . . (pause, slight laugh) . . . I'm a strong Christian and I love sports – especially field hockey (laughs again). That doesn't really go together, does it?
PC: (I laugh too). How do you mean?
Kate: Like, I beat people up on the ice, but I'm a strong Christian, right? (I laugh with Kate and she continues.) I'm in a Youth Group at my church and I love it. It takes up almost all of my time. And I'm also on a traveling hockey team so that takes up a lot of my time too. (After some discussion of the hockey team, I switch topics.)
PC: So, how about school, reading class in particular. Are you a reader?
Kate: I LOVE to read. I like strange books – fantasy, sci fi. I like crazy books too, but my favorite book is the book my dad wrote.
PC: Your dad wrote a book?
Kate: (A proud smile crosses Kate's face). Yeah, it's about my grandfather. It's historical fiction. It's great. (We discuss this book briefly and Kate promises to show it to me when we return to the classroom. She explains that she carries the book to school with her each day and that she's read it "lots of times.")

8th Grade Introductory Questionnaire

Table 2. Kate's 8th Grade Introductory Questionnaire

Favorite color:	Orange
Favorite food:	Things from *Coffee Plantation*
Favorite TV show:	*Boy Meets World*
Favorite book:	*Telmenu Seimnieks*
One thing I'm good at:	Hockey
What really bugs me:	Long hair
My family is:	Athletic
My hobby is:	Hockey
What really makes me happy:	Hockey
My best subject is:	Math
I like people who:	Like hockey
What really scares me is:	Normal people
What really makes me sad:	Thinking of home (Connecticut)

Situated Identity: "I'm Different"

Based on my review and analysis of all data involving Kate (and keeping in mind that she was meeting me for the first time), I came away with an initial impression of a student feeling out of place in a new school setting. Her descriptions of herself, her self-authoring, indicate a sense of being different from her classmates in several ways. "I like strange books." "I am scared of normal people." I am sad when "I think of home," which, in Kate's case, is Connecticut rather than where she has been living for the past year. Kate's two older sisters are living away from home at college and Kate misses them while simultaneously adjusts to being an "only kid for the first time." Kate finds comfort in her church group, telling me at one point, "I know God loves me." She also finds comfort in her family, works hard in school as her parents expect her to, and takes pride in her father's identity as a published author. Her out-of-school activities, membership in a traveling hockey team and her church's youth group, give her a positive sense of self that she has not yet found in the classroom. "I don't have a whole ton of friends in school yet." The Internet serves as a major means of communication for Kate when she is at

home, allowing her to keep in daily touch with her sisters and with her Connecticut friends as well. Kate accepts that her in-school life is in "this new place," but the Internet allows her to stay in contact with those people with whom she feels most comfortable and appreciated.

Ethan, The Student and the Person

Ethan has the look of what was once described as "the all-American boy." While that description is no longer politically appreciated, it does seem a good fit for Ethan who is of average height, with sandy hair, blue eyes, and a smattering of freckles. On the day we met, Ethan, who is a member of Meadow Brook's soccer team, was wearing a pair of baggy tan pants, a buttoned-down white shirt (tucked out of the pants) and a wide, brightly-colored necktie. Ethan explained to me that his soccer team had a game after school and that the players are required to wear neckties on game days.

Ethan seemed pleased to be a participant in the study. When I asked him to join me for our first interview, he raised his eyebrows at the other students at his table and laughed, "I'm getting out of class." As I became better acquainted with Ethan and after observing his interactions, I saw that he was generally confident and comfortable with his peers. I was therefore a little surprised when one of the girls involved in the study later told me, "You gotta watch out for Ethan, he gets away with stuff whenever he can . . . he's not really bad, but he likes to try to look like he's bad to be cool. He's a little sneaky."

First Interview

During our initial interview, Ethan was quite charming. He smiled often and tried to include some humor in his comments. His answered rapidly, with little or no consideration or reflection. The following excerpt illustrates some of Ethan's personality during our initial meeting.

PC: Ethan, if you were meeting someone new for the first time, what would you want them to know about you?
Ethan: An adult or a kid?
PC: (Pause, I didn't expect this.) Either. . . okay, let's say another kid first.
Ethan: That I'm athletic and funny, that I like hanging out . . . that I'm like everybody else pretty much.
PC: How about an adult?
Ethan: That I was born in Germany and I have a little sister. . . a pain, but I wouldn't tell

the adult that probably. That I'm pretty good in school. I get good grades.
PC: So, you'd want kids to know you differently than adults.
Ethan: Yeah, probably.

PC: You said you're pretty good in school. Can you tell me more about that? For instance, which is your best subject?
Ethan: School is pretty easy for me. I get my homework done in school most of the time. I do it fast and I don't really have to study at all. Math is my best subject because it's the easiest. I like Ms. Hampton, she's funny, but I don't like that I have to write a lot in there. . . reflections. They're not hard or anything though.
PC: Any favorite books?
Ethan: I like Harry Potter. I like action books and I thought Quidditch (a competitive sport played on flying broomsticks from the Harry Potter series [Rowling, 1999]) was cool. I would LOVE to play that game.
PC: How about computers? Do you use them much, either in school or at home?
Ethan: Well, in school, it's like they don't get it with computers . . . well, sort of they do, but it's different. We use them in computer class to look things up and do projects and reports and stuff. And sometimes we use them in other classes, but not much really.
PC: And at home?
Ethan: I'm on IM every night for a couple of hours. I've got 100 kids on my Buddy List. I talk to everybody at the same time. It's fun. It's better than the phone.
PC: Even though it's writing, you like it?
Ethan: It doesn't feel like writing though . . . it's just talking. It's different.

8th Grade Introductory Questionnaire

Table 3. Ethan's 8th Grade Introductory Questionnaire

Favorite color:	Blue
Favorite food:	Pizza
Favorite TV show:	*The Simpsons*
Favorite book:	*Harry Potter* (all of them)
One thing I'm good at:	Sports (soccer)
What really bugs me:	Having too much homework
My family is:	Is happy
My hobby is:	Soccer and other sports
What really makes me happy:	TV
My best subject is:	Science
I like people who:	Are nice to me
What really scares me is:	Spiders
What really makes me sad:	Being alone

Situated Identity: "One of the Guys"

Ethan's sense of identity in school, and the identity he was willing to share with me, centers on being socially accepted by his peers, especially "the guys." His home life, as reported by Lorraine and as Ethan self-reported, is stable and supportive. He is not wanting for material goods, is able to dress in step with the latest fashions, and owns the technologies adolescents favor most. Ethan plays soccer not because he considers himself good at it or because he enjoys it so much as "because all my friends play. It's fun." At this point in his life, Ethan is able to occupy much of his time with things that are "fun and don't take too long." He is spontaneous, seems happy and describes himself as "like everybody else." He dislikes "being alone," reads books and magazines that are popular with his age group, and watches TV programs that are popular with his peers as well. He uses the Internet as a means of extending communication with his school cohort when he is at home. His self-authoring, from what I could detect, is deeply embedded in being part of the "gang," in doing whatever is needed to maintain strong social status with his peers. School is a place where he can interact with these peers regularly. Beers' (1999) trenchant remarks regarding adolescents apply well to Ethan, "For middle schoolers, school is primarily a place for making friends and figuring out just who you are. Somewhere after all of that, it's also a place for learning." (p.12). Certainly there is much in the way of social learning going on for Ethan each day in school. This learning takes place outside of school for Ethan as well. Ethan proudly told me of the "two hours or more" of time he spends each night Instant Messaging (chatting online) with his school buddies, a time when he says they can "just goof around and talk." The fact that this "talk" happens through writing seems to make no difference to Ethan.

Naomi, The Student and the Person

Naomi is a slight, African-American girl who gives a first impression of being a little shy. The first time I saw her, she was sitting at the back of the classroom at a table with three other girls; one of the other girls is African-American, another is Filipino. Lorraine allows students to sit with whomever they like in her classes, Naomi's table includes more diversity than any other student cluster in the room. On the day we met, Naomi was dressed in a long-sleeved cotton shirt and jeans. Her hair was pulled back in a short ponytail and she peered at me through wire-rimmed glasses. When Lorraine

introduced us, Naomi said very little; she simply gathered her books and headed to the teacher's lounge with me for our first interview session. I recall wondering if she was uncomfortable in my presence. But as the interview progressed, I got the distinct impression that Naomi was comfortable enough; instead, she seemed to be busy figuring out what kind of person she was dealing with.

First Interview

During our first interview, Naomi was relatively subdued. She took her time and thought over my questions carefully before responding. The following excerpt illustrates both some of Naomi's reticence and her maturity during our initial meeting.

PC: Naomi, tell me a little about yourself if you wouldn't mind – as a person and as a student.
Naomi: Well, I was born in Germany and I've lived in lots of different places, like New York and Virginia and Kansas and Louisiana. We moved every two years when I was little.
PC: Hmmm. How was that for you - all that moving?
Naomi: My dad was in the military . . . we had to move. It was okay, I guess. I had to keep making new friends all the time. But now we're staying here because my dad is retired.
PC: Are you happy about that? I mean, do you like it here?
Naomi: Mostly I like Meadow Brook. Most of the kids here are okay . . . they're not much different from anywhere else probably.
PC: How do you mean?
Naomi: Some kids are popular, some are mean. (I nod and encourage Naomi to go on but she seems to have finished with that topic.)
PC: So, how about you as a student? Do you like school?
Naomi: I'm a good student, I think – all A's. I work hard . . . I do about an hour of homework every night. My parents put pressure on me to do a good job.
PC: Do you like reading?
Naomi: Yes. I like realistic books about real kids and their problems with each other.
PC: So, you think kids have lots of problems with each other in real life?
Naomi: (Raises her eyebrows at me and smiles a little). Oh, yeah. (Again, Naomi takes the topic no further.)
PC: How about technology? Do you use it in school or at home much?
Naomi: Not in school really, just for computer class. At home I use it after I finish my homework. I like to shop online and most of all I like chatting with my friends.
PC: Your school friends?
Naomi: Uh huh . . . and other people too . . . like my sister who's at college . . . well, sometimes I talk to her when I'm not mad at her. I have 28 people on my Buddy List and they're from all over the place . . . remember, we moved a lot.

8th Grade Introductory Questionnaire

Table 4. Naomi's 8th Grade Introductory Questionnaire

Favorite color:	Blue
Favorite food:	Pizza
Favorite TV show:	*American Idol*
Favorite book:	*Speak* and *Wanted*
One thing I'm good at:	Playing the alto sax
What really bugs me:	Talkative, annoying people
My family is:	Special to me
My hobby is:	Shopping
What really makes me happy:	Shopping and making good grades
My best subject is:	Math/Algebra
I like people who:	Are faithful and generous
What really scares me is:	Bees and snakes
What really makes me sad:	Deaths

Situated Identity: "You Gotta Be Real"

I did not find Naomi to be a student who tries to please others in any way. When she told me her views on people her age, I didn't sense that she was seeking either my input or my endorsement of them. These were simply her views based on what she had experienced. In her opinion, the "best people are the ones who are real and faithful." She is open about her likes and dislikes, "shopping" gets a big plus and "people who are talkative" get a big minus. I asked her why she didn't like talkative people and she told me that "people who talk all the time aren't really interested in anybody else . . . they're just trying to look like they're always cool." Naomi is aware of what it means to be "cool" at Meadow Brook – being a "cheerleader if you're a girl or a football player if you're a guy . . . "sitting at the right table at lunch time and in classes" . . . "dressing right." But she doesn't feel any great need to follow the rules of being cool. "I like my friends and I have a good family."

Naomi enjoys reading and explains that "some books I've read tell the truth about being a kid in school." One of her favorite books is *Speak*, the story of a high school girl

named Melinda who struggles with the "clans" that dominate her school.

> There they all were in the cafeteria: Jocks, Country Clubbers, Idiot Savants, Cheerleaders, Human Waste, Eurotrash, Future Fascists of America, Big Hair Chix, the Marthas, Suffering Artists, Thespians, Goths, Shredders. I am clanless. (Anderson, 1999, p.4)

The character Melinda refuses to join in any of these groups because they don't seem real to her. While Naomi's inclination to analyze the social tendencies of her peers isn't nearly as extreme as Melinda's, *Speak* is a book that strongly appeals to Naomi. "It tells the truth and it's sad. It's a real favorite of mine."

In addition to using reading to help make meaning of what she experiences with her peers each day, Naomi also uses the Internet as a means of further communicating with favorite classmates and deciphering "all the stuff that goes on in school." When she chats with her online buddies in the evenings, Naomi is able to explore her thoughts with school friends and with the friends she has established outside the classroom as well.

Corey, The Student and the Person

Corey was absent the first day of the study. Actually, I found that Corey was absent more often than anyone else in Lorraine's class. But each time he returned he received a public "welcome back" from the most popular (table-by-the-window) students in the class . . . "Hey, where were you yesterday, man?" "Hey, Corey, wassup? Where you been?" Usually, his return would involve a quick hug from one or two girls as well. Corey, as Lorraine explained, "is the number one catch of the class . . . as the kids say, he's a real player."

Corey is on the short side for his age, with close-cropped dark hair, and large brown eyes that rarely make contact with the eyes of an adult. His demeanor is understated and he keeps a low profile during class, rarely raising his hand or joining in class discussions. It is hard to tell if he is simply shy or, as Lorraine explained, "not willing to take the risk of saying something that might not be considered cool . . . better to say nothing than to say something that might damage his image."

Corey is bi-racial. He lives with his African-American father who is an auto mechanic. Corey's mother, who is not part of Corey's home scene, is White. Corey has an older brother who lives with his mother, but there is apparently little or no contact

between the two boys. No one at Meadow Brook seemed to know much about Corey's mother and Corey simply described his family in the Introductory Questionnaire as "split up." In a school where many students come from two-parent homes with either or both parents having graduated from college, Corey is something of an anomaly. It is difficult to say whether being somehow different (his parentage and his home situation) is part of the reason for his popularity or if the popularity rests in his successful projecting of himself as something of an enigma, as something of a modern day James Dean. He is extremely popular with his peers and a very sharp dresser by current adolescent standards.

First Interview

My initial interview with Corey was very brief. It took a good deal of persuasion to get him to say much at all and his eyes met mine only once or twice during the ten minutes we spent together. The following excerpt illustrates some of the terse nature of Corey's comments with me during our initial meeting.

PC: Tell me a little about yourself, Corey.
Corey: I'm a regular kid. I hang out with Trey. I play football.
PC: Trey's a friend of yours from school?
Corey: Yeah, he's a year older than me (long silence). . . he lives here and I live in Raleigh. I go home with him after school. He's a football player too.
PC: So, how about school? What kind of student would you say you are?
Corey: Not much of a student (small smile). I mean, I do okay but I don't work hard or anything. (Long silence.) I don't have a favorite subject. I just read if I have to.
PC: No favorite books then?
Corey: *The Outsiders* was okay. . . there was action . . . but the names of the characters was bad. (I tried to get more on the topic of reading but had no success.)
PC: So how about computers. Do you use them at all – in school or at home?
Corey: In school, in computer skills class. At home, I talk online more than on the phone. But I don't use the Internet all that much.

8th Grade Introductory Questionnaire

Table 5. Corey's 8th Grade Introductory Questionnaire

Favorite color:	Green
Favorite food:	Pizza
Favorite TV show:	*King of the Hill*
Favorite book:	Don't have one
One thing I'm good at:	Sports

What really bugs me:	Lindsey
My family is:	Split up
My hobby is:	Sports
What really makes me happy:	Playing football
My best subject is:	Math
I like people who:	Play football
What really scares me is:	Nothing
What really makes me sad:	Death

Situated Identity: "I'm Tough"

Corey describes himself as an athlete and will open up a little when talking about his position as a wide receiver with the Meadow Brook football team. He describes football as "what makes me happy" and his friends as "the guys who play football." He closes down when asked to talk about school. His grades are fairly good (a B average), but Lorraine tells me that his test scores suggest he could do much better than he does. "He does enough to get by," according to Lorraine, who sees him as "charming, a good kid, but all about maintaining his image." This image seems to be that of a tough guy - "nothing scares me," he says. Corey sits at the head of the table-near-the-window (the lead table in Lorraine's classroom in terms of social status). The other boys at his table lean over to whisper to Corey when Lorraine's back is turned or between activities, and girls from the table in front of his turn and try to get his attention whenever possible. It appears Corey is riding the tide of middle school popularity and is being careful not to do anything that might upset the position he has established with his peers. He uses the Internet in the evening to talk with his friends, but it does not seem to be as pressing a need as it is with some of his classmates. As Lorraine put it, "sometimes it's safer to keep your mouth closed when you've got a good thing going."

Beth, The Student and the Person

Lorraine first identified the five participants by nodding toward each of them as they were busy writing in their response journals. They had their heads down in most cases, and I was able to get a quick first impression before we actually met. Beth was sitting at the same table as Naomi, the table with the greatest measure of diversity in the

room. There was a frown of concentration on her face as she wrote furiously, stopped, erased a few lines, and dove into the writing again. Beth is Filipino, with light brown skin, dark hair and eyes, of average height and weight for her age. In spite of having a low-pitched and quiet voice, she exudes an air of confidence. As the study progressed, I found that she joined into class discussions readily, making strong and thoughtful points that seem to be received positively by her classmates. I didn't realize how conscious she was of the social hierarchy in the room, her need to "always think about what others are thinking," until we talked about class interactions one-on-one. It was at this point that she described herself as "on and off confident."

First Interview

Beth was talkative and appeared comfortable during our first interview session. She had a ready sense of humor and provided in-depth and thoughtful responses to my questions. The following excerpt illustrates some of Beth's verbal facility and social presence during our initial meeting.

PC: Tell me a little about yourself, Beth.
Beth: Well, my family is from the Philippines and I would say that we are a very close family. I am an only child and my parents are interested in my work at school . . . so I have to work hard. But that's okay (she quickly adds) because I like studying. I get all A's in school and I'm in the AG (academically gifted) classes most of the day, which I'm happy about.
PC: Why do you like being in those classes? Is there any reason in particular?
Beth: (She is quiet for a minute before answering.) In AG classes, you're allowed to be insightful.
PC: Hmmm. That's very interesting. That doesn't happen in your other classes?
Beth: You can get teased for it. You've got to think about where you are and be more careful.
PC: So, what's your favorite subject in school?
Beth: Reading and writing . . . both really . . . language.
PC: What is it about those subjects that you like so much?
Beth: Well, I like to write stories . . . to make up what other people might be thinking . . . and what they might be saying too. I like writing dialog. And reading, well, I just like books and stories. *Ella Enchanted* (Levine, 1997) is one of my favorites. Have you read it? (I tell her I haven't and ask her about the plot.)
Beth: It's like a fairy tale but the main character, Ella, is really strong. I would say that she's a rebel . . . she winds up saving herself and saving the prince, too, in the end of the book. (She laughs and I agree that it sounds like a good book that I need to read.)
PC: So, do you use technology much at home? Computers?
Beth: I talk online with my friends sometimes, but not that much. I'm usually busy after school.

8th Grade Introductory Questionnaire

Table 6. Beth's 8th Grade Introductory Questionnaire

Favorite color:	Blue
Favorite food:	Lumpia
Favorite TV show:	*Crib*
Favorite book:	*Ring of Endless Light*
One thing I'm good at:	Karate
What really bugs me:	People with bad breath who talk to you
My family is:	From the Philippines
My hobby is:	Writing short stories
What really makes me happy:	Christmas!
My best subject is:	Language
I like people who:	Are outgoing
What really scares me is:	Finding Coco (our dog) not in our yard
What really makes me sad:	The end of holidays

Situated Identity: "Be Careful, Be Happy"

When I was speaking with Beth, there were times I felt I was in the presence of another adult. She is perceptive, "insightful," and socially poised. She is also intrigued by the nuances in human nature within her two very different immediate environments: her home and her school. At home, Beth's native Filipino culture is promoted and honored. Beth reports with pride that her family regularly speaks Tagalog rather than English at home, and that she enjoys native Filipino food such as "lumpia, my favorite." Her school environment is more "confusing . . . and challenging at times." Beth takes Karate lessons after school, where she "takes out any anger that builds up inside of me." It is an anger that springs from occasionally worrying about being "teased or bullied" at school. "If you are careful, it works out at school," Beth explains. "I mean, I do have good friends. But sometimes kids pick on each other for the smallest things, the smallest jealousies." In spite of being mindful of the "way it is" with her adolescent peers, Beth also speaks of the many things in life that make her happy. These include her "real friends," her dog Coco, Christmas, and her family. She loves to read and write, and is beginning to talk to

friends at night on the Internet. “But I don’t always want to,” she adds. “Sometimes I just want my home to be my home.”

The Planned Activities

Lorraine and I met twice prior to the start of the study to discuss some of the logistics regarding timelines and schedules, and the specific Internet resources she might use to support the reading of the young adult novel, *Holes* (Sachar, 1999). After considering her options, Lorraine devised an activity grid (see Table 7) for her students that was based on the work of Winebrenner and Espeland (2000) and that would accommodate multiple learning styles. Within the grid, Lorraine included both technology-enhanced and non-technology-enhanced learning activities.

All the students were required to take part in the technology-enhanced pre-reading activities. The during-reading and post-reading activities featured technology-enhanced options along with some commercial writing prompts and ideas for artistic projects (Zampino, 1999) to accompany the reading experience. While Lorraine did not feel compelled to match the class activities to her state’s Standard Course of Study, her overall plan for the *Holes* unit matched well with certain state objectives and competency goals (see Appendix G). She wanted to address the questions at the heart of my study and while remaining true to her own teaching style. Lorraine told me that she was intent on encouraging cognitive engagement with the text while also fostering social learning, learning about the self through interacting with others. I was glad Lorraine and I had the same agenda. I too was looking for the effects of technology on these two areas of learning, but my interest extended beyond the students’ experiences. I was intent on studying Lorraine’s experience as well.

Table 7. Lorraine’s TIC-TAC-TOE Activity Grid

TIC-TAC-TOE with Louis Sachar’s novel *Holes* *Hampton*
1) Pre-reading activities must be completed by all groups: ▪ Boot Camp Web Quest ▪ Quick Topic™ discussion on the Web ▪ Create-a-Character (*Literacy Junction*) 2) Choose 3 activities in a row that will create tic-tac-toe. I will approve final choices.

Math/Logical	**Linguistic/Verbal**	**Bodily/Kinesthetic**
Work math ideas (23) and add 3 new problems Work fact/opinion (27) *Solve a Problem* (LJ)	*Create Dialog* (LJ) Write a new ending Create a journal entry (from character's viewpoint)	Act out scene (bullies) – (29) Create T-Shirt for camp Make spiced peaches (21) Build camp model (11)
Visual/Spatial	**Free Choice**	**Intrapersonal**
Create family trees Create illustrated vocab. Dictionary Create brochure for Camp	Nifty names (12) *Write a Critique* (LJ) Research illiteracy (24) Research Homelessness (34) Describe setting (13)	Create chapter titles Write a journal entry from Stanley's pt. of view *Create Dialog* (LJ)
Interpersonal	**Naturalist**	**Musical**
Worksheet on conflict (28) Complete Trial idea (31) *Create Dialog* (LJ) *Solve a Problem* (LJ)	Research inventions (17) Research Texas terrain Fill in holes (38) Track family lines of Stanley & Zero	Create camp songs – be original and nice Create an original ballad for several camp members Create song about one of the major themes
The different activities have a rating scale for difficulty (E,M,D = Easy, Medium, Difficult) and you are awarded points for completion and quality. You must contract for a certain grade. Your plan must be approved before you start work, or you will be wasting time. For an A, you will need a total of 180 points. For a B, you will need a total of 150 points. For a C, you will need a total of 120 points. Activities are weighted at 40, 50, or 60 points, depending on the complexity of the assignment. You may not contract for any grade lower than a C, though you may make lower than 120 points if the work is not done well or not turned in on time (a zero, if late).		

Technology-Enhanced Activities

I examined Lorraine's technology-enhanced activity choices in light of the National Education Technology Standards (NETS) suggested guidelines for best classroom practice (ISTE, 2002). In each case, Lorraine's plans fell within at least two of the suggested categories.

- *Technology as a social, ethical and human tool* – to ensure students understand the ethical, cultural, and societal issues related to technology" in order to use technology "responsibly. (Web Quest, Quick Topic™, Write-a-Dialog, Solve-a-Problem, Create-a-Character)
- *Technology as a productivity tool* – to collaborate, enhance learning, prepare publications and promote creativity. (Web Quest, Create-a-Character)

- *Technology as a personal communication tool* – to interact with peers, experts and other audiences and to use a variety of media and formats to communicate to multiple audiences. (Quick Topic™, Write-a-Dialog, Solve-a-Problem, Create-a-Character)
- *Technology as a research tool* – to locate, evaluate, and collect information from a variety of sources" and to select resources most appropriate to specific tasks. (Web Quest)
- *Technology as a problem-solving and decision-making tool* – to make informed decisions regarding problem solving opportunities in the real world (Web Quest, Solve-a-Problem, Create-a-Dialog)

I also examined Lorraine's plan in light of Harris's (2001) telecollaborative activity structure categories, the categories Harris proposes teachers should keep in mind when integrating technology. There was some overlap between the NETS guidelines and Harris's categories; again, Lorraine's plan readily aligned with the professional suggestions.

- *Interpersonal Exchange* – long-term, short-term, and variable-term means of communication involving activities such as: Keypals (online pen pals), telementoring, electronic appearances, question and answer sessions, and impersonations. (Quick Topic™, Write-a-Dialog, Solve-a-Problem, Create-a-Character)
- *Information Collection and Analysis* – tele-fieldtrips, information exchanges, database creation, pooled data analysis, and electronic publishing. (Web Quest, Quick Topic™)
- *Problem Solving* – activities that involve authentic commitment to assisting others: social action projects, simulations, tele-present problem-solving, sequential creations, parallel problem-solving (through peer feedback sessions), and information searches (Web Quest, Solve-a-Problem, Create-a-Dialog)

Finally, Lorraine and I considered the points made by Means' (2001) regarding the value of technology-enhanced learning activities when they are used for "real world" connections, such as connections to outside experts and distant peers. According to Means, such interactions can foster multiple perspective-taking and provide students with

real-world feedback on their completed products. The activities Lorraine planned to use with her students, particularly the Web Quest and the interactive activities from the *Literacy Junction* web site (Create-a-Character, Write-a-Dialog, and Solve-a-Problem,) involved precisely the kind of real-world connections Means encouraged.

Web Quests

In 1995, using Marzano's (1992) Dimensions of Thinking Model as a framework, Bernie Dodge and Tom March of San Diego State University introduced the Web Quest concept. Essentially, a Web Quest is an inquiry-based learning activity used to focus and direct Web research on a given topic. As students make their way through a Quest, they examine multiple Internet sources, make sense of what they read, and share their learning with others. Web Quests can be short-term (1-3 class sessions) or long-term (a complete unit of study). The intent of a Web Quest is to refine and extend Web information in a timely and controlled fashion. Rather than allowing students to freely "surf the Web," a Web Quest presents a topic for students to research using Internet resources that have been screened by the teacher. Depending on the maturity of the students, the teacher may opt to include not only legitimate Web materials (i.e., most government, academic, and corporate sites), but also possibly biased materials (i.e., some personal sites) in order to hone students' abilities to critically evaluate Internet resources.

Ideally, when working with mature students (middle grades and up), Web Quests can be used to examine social issues or complex problems that may have more than one solution and that may encompass more than one perspective. Part of the learning process includes considering the varying personal stakes and interests that can surround and affect certain social issues. Web Quests are generally conducted cooperatively, with small groups of students (3-4) studying resources together before sharing their thoughts and findings with a wider audience. Carefully planned and executed, Web Quests offer students a guided framework for in-school inquiry.

I was pleased to learn that Lorraine had worked with Web Quests in one of her graduate courses prior to the start of our study. As a requirement for the course, she had created a Web Quest to accompany the reading of the young adult novel *Holes*. Lorraine's Quest, entitled "People Everywhere: Not a Bit of Help," involves activities based on various themes from Sachar's novel. Presented in first person voice, the opening

of the Quest features a scene in which an adolescent is at a shopping mall with friends. One of the friends is stopped when she tries to leave a store with a pair of shoes she has not paid for. The Quest does not state whether the youth stole the shoes or whether there was a misunderstanding. In either case, she is found guilty in court and is sent to a juvenile boot camp.

The plot of Lorraine's Quest mirrors the story line of *Holes* in many ways, a story line that involves the experiences of a young boy wrongfully sent to a juvenile boot camp. After reading the introductory material, students participating in Lorraine's Quest are directed to research the effectiveness of juvenile boot camps and to respond to the following questions: "Would a friend of yours be helped by being sent to juvenile boot camp if she were guilty of the crime? Are boot camps an effective correctional method? Use points from the Internet sites you visited to support your thoughts."

Lorraine's Web Quest is housed at Filamentality (www.filamentality.com), a web site funded by Pacific Bell, Inc. Filamentality includes instructions regarding both the purpose and the process involved in creating Web Quests, and offers free space for housing sites for up to six months. Also on the Filamentality site, is a list of topic-specific Quests visitors can view and share their resulting work with others - can "publish" on the Web.

Quick Topic™

Following the Web Quest activity, Lorraine had her students respond to the questions regarding the effectiveness of boot camps on the public bulletin board, Quick Topic™ (www.quicktopic.com). Quick Topic, sponsored by Internicity Corporation, allows for either synchronous (real time) or asynchronous Web discussions. Use of the site is free, but it is regulated through a registration and password-protection process. According to Lorraine, who has used the site in the past, Quick Topic™ is a popular Web resource with teachers. The site's only real drawback, in Lorraine's opinion, is that while students can publish their views to the Web and can discuss them with others, only people who have a registration name and accompanying password can join the online conversations. This type of safeguarding ensures a measure of security, but also diminishes the Web benefit of being able to publish to a global audience. Lorraine

mentioned the possibility of sharing passwords with other teachers across the country in order to "open up" her students' Quick Topic™ conversations.

On a more positive note, the fact that Quick Topic™ conversations can be synchronous or asynchronous adds a unique dimension to this Web discussion format. Being able to post thoughts and conversations either at school or from home may somewhat change the nature of the experience. Given time to step back from the initial classroom discussion and reflect before responding offers students more time to engage with the text in a thoughtful and meaningful manner. Whether or not they will *take* the time to engage deeply and reflect before responding will vary from student to student, but the opportunity is there.

In light of the NETS standards, use of a public forum such as Quick Topic™ requires using a "personal communication tool" in a considerate and responsible way. Once students post their thoughts to the Web, whether accessible only by classmates or by anyone around the world, those thoughts are on public record for as long as the site remains viable. As Lorraine and I discussed, this might give students pause to respond more responsibility when sharing their views. Before we began the Quick Topic™ session, we reminded the students of this fact.

Create-a-Character

Literacy Junction (www.ncsu.edu/literacyjunction) is a web site designed to support the teaching of contemporary and culturally diverse young adult literature. A central feature of the site is the opportunity to join a virtual community. After registering, *Literacy Junction* members are invited to create a cybercharacter to attend the site's virtual learning community called Cyber Heights Middle School (CHMS). A set of clear directions leads students through the process of creating a cybercharacter. Guided by a downloadable template, students begin by drawing their characters. Next, they scan their drawings and write accompanying character descriptions. Finally, students upload both the drawings and the descriptions to share with others. CHMS includes three types of characters:

1) Cyberstudents (created by visitors to the site) - designed to encourage creative identity exploration on the Web.

2) Cybermodels (created by the site administrators) - designed to demonstrate how characters engage with the young adult literature featured on the site.
3) Cybercharacters (created by the site administrators and student visitors) - designed to encourage cognitive engagement with the main characters from the books featured on the site.

Building on adolescent tendencies to assume new and varying identities on the Web, to use the Web as an identity laboratory for "personal experiments" (Wallace, 1999; Trotter, 2002), *Literacy Junction's* Create-a-Character category invites students to create cybercharacters who, in the students' opinions, are "real," who represent typical adolescent personalities. In keeping with the NETS suggestion to encourage creative expression through technology use, Create-a-Character allows students to explore their own evolving identities as they develop their online characters.

Beyond using Create-a-Character for building online personae, students are also encouraged to share their views on themes and social issues from the books featured on *Literacy Junction* through the perspectives of their cybercharacters. Such use of the Web's "once-removed, incorporeal format" (England & Petro, 1998) to explore views on literature-driven social issues offers students a unique communication opportunity; their thoughts and opinions are published to global audiences, but they are filtered through the online personae the students have created. Research to date with *Literacy Junction's* Create-a-Character (Cuper & Spires, 2002) has demonstrated that students do, in fact, recreate aspects of themselves when developing their cybercharacters and do use their characters as a means of expressing their own views in a safe, "once-removed" format.

Write-a-Dialog

Directly related to Create-a-Character, the Write-a-Dialog feature is used by students to create an imaginary conversation among three or four characters from the Cyber Heights Middle School yearbook. Prompts for the dialogs involve themes and social issues from *Literacy Junction's* featured novels and gives students a chance to bring cybercharacters to life as they write imaginary discussions between their own characters and other CHMS characters. To engage more deeply with the text, students are required to include the main character from the novel they are reading in each dialog. Consequently, students must consider multiple perspectives, including book character's

perspectives, on socially significant topics introduced in the literature. In keeping with Means' suggestions for authentic and meaningful Web learning, all dialogs deal with real world problems and the resulting student manuscripts are posted to the Web. Students thus have the opportunity to creatively and meaningfully respond to the important issues embedded in current young adult literature to a global audience.

Solve-a-Problem

Solve-a-Problem is another interactive Web activity available on the *Literacy Junction* site. As students read the novels featured on *Literacy Junction,* they are invited to post their views regarding some of the social issues and themes embedded in these novels. The Solve-a-Problem prompts take issues from the literature into imaginary contemporary settings and ask students to consider how they would handle such issues if directly confronted with them. Student offerings are then posted on the Web for others to read and consider. As with Create-a-Dialog, the intent of Solve-a-Problem is to encourage critical thinking in students as they engage with the weightier issues underlying current young adult literature and to go public with their responses by sharing their thoughts and problem solutions with global audiences.

Non-Technology-Enhanced Activities

Literature Circles

While the focus of the study was to examine the effects of adding technology-enhanced activities to reading instruction, Lorraine did include certain activities that did not involve the use of technology as well. The first activity of this type involved small-group (4-5 student), literature-circle discussions of *Holes.* In each literature circle, students posed questions to each other regarding the novel's plot, characters, and themes as they read together. In this way, Lorraine used the literature circles as a "during reading" activity for students to support each other's understanding and to consider each other's interpretations. Each group kept a folder that held the students' questions as well as their individual reactions to the sessions. At the close of the study, Lorraine told me that her students normally spend much more time discussing their reactions and thoughts in the literature circle format. The numerous technology glitches we encountered reduced the amount of time available for this activity, an activity that Lorraine has found extremely valuable in the past and an activity that I favored as a teacher as well.

Socratic Seminar

Lorraine closed the study with two non-technology-enhanced and always successful middle grade learning activities. First, she engaged the class in a Socratic seminar, a whole class discussion of *Holes* that was driven by a series of "essential questions." The leader (usually the teacher) and the participants in a Socratic seminar are expected to first read the text carefully in advance of the seminar, then generate essential questions, and finally to listen actively during the seminar and share ideas using evidence from the text. The "essential questions" underlying such a seminar are crucial to the success of this learning experience. Ideally, the intent of the seminar is to generate multiple answers and perspectives, and to cast old knowledge and understandings in a new light (Wiggins, 1998).

Class Presentations

Finally, Lorraine engaged the class in a public sharing of their projects and products related to *Holes.* One by one, students came to the front of the room and presented their work This gave them the opportunity to explain how they chose to interact with the novel and to experience peer reactions to their products and thoughts in an immediate, face-to-face vs. an ethereal, online format. With a total of twenty-seven students in the class, time was a factor in this exercise. While they were required to complete three activities from Lorraine's initial grid, they only had time to summarize their work and give an in-depth explanation of one piece. As important a learning experience as this type of presentation can be, Lorraine and I agreed that sitting through twenty-seven presentations could be tedious for everyone. She therefore divided the presentations over two days. We still found that, by the end of the second session, many of the students lost interest in hearing each other's presentations and, as a result, did not offer the final presenters the quality of feedback the first group received.

CHAPTER V: FINDINGS AND ANALYSIS

Introduction and Framework for the Chapter

In this chapter, I present my findings from the six weeks I spent with Lorraine and her students as I explored the effects of adding technology-enhanced activities to literature instruction.

I examine the data I gathered—which is chiefly comprised of interviews, student products, classroom observations, and follow-up discussions with the study's six participants—through two interpretive lenses. The lenses align with the central questions that inform the purpose and direction of this study. In light of that, through the first lens I focus on students' cognitive engagement with text, specifically how it was affected by the addition of the technology-enhanced activities. I discuss my findings in the first section, entitled *Technology-Enhanced Learning and Students' Cognitive Engagement with Text.* This section, it should be noted, is heavily influenced by the reading framework devised by Corno and Mandinach (1983).

The second interpretive lens I apply is on the *interplay* between cognitive engagement and social learning when technology is included in instructional activities. As a starting point, it should be noted that research in learning has traditionally maintained that learning is socially situated, especially when the learning involves adolescents (Erikson, 1968; Vygotsky, 1978, et. al). There is today a growing body of evidence that suggests this is also true—indeed, enhanced—when learning involves the use of technology (Tapscott, 1999; Doherty & Orlofsky, 2001). With this in mind, I explore the interrelationship between cognitive and social learning that is suggested in my study findings. I discuss this aspect in the second section, entitled *The Interplay of Students' Cognitive and Social Learning in the Technology-Enhanced Learning Environment.*

Technology-Enhanced Learning and Students' Cognitive Engagement with Text

My first interpretative lens specifically involves assessing the effects of adding technology-enhanced activities on students' cognitive engagement with text. My

approach is to develop and evaluate my findings using Corno and Mandinach's (1983) three-part framework for planning for and assessing cognitive engagement with text. In consequence, this section is organized and presented along three themes or phases that stem from the Corno and Mandinach research: the acts of planning, connecting, and selecting as they have to do with text engagement. Accordingly, my subsections are entitled as follows: *Multiple Perspectives: Planning for Reading, Me and the Issues: Connecting to Reading,* and *Keeping Up With What's Important: Selecting Relevant Story Threads*.

In the "planning" or pre-reading phase, I discuss my findings as they relate to the multiple perspectives students can locate and utilize because of technology resources. In this part of the study, the resources used were a Web Quest and the Quick Topic™ discussion forum.

In the second phase, "connecting," I discuss how students can become more engaged with text through the use of a technology resource. In this case, it was a resource called Solve-a-Problem.

In the final phase, "selecting," I discuss the students' ability to pick out important text issues from trivial elements, as well as identify the main story line in a text. Here two non-technology-based activities were used, literature circles and a Socratic seminar.

Multiple Perspectives: Planning for Reading

The purpose of the initial or "planning" phase was to see what benefit access to multiple perspectives may have on text engagement. In the Corno and Mandinach schema, this phase is seen as providing a crucial means of preparing for a more enriching reading experience.

Lorraine began the study of the novel *Holes* by involving the class in two technology-enhanced, pre-reading activities. As noted earlier, both activities were used during what Corno and Mandinach characterize as the "planning" stage in cognitive engagement with text. Essentially, this is a pre-reading phase. In the first activity, the students were asked to participate in a Web Quest that Lorraine had created called "People Everywhere: Not a Bit of Help." It was to be used to explore the topic of juvenile

detention centers or "boot camps." In the second activity, and upon completing the first, the students were directed to post their views regarding boot camps on the Internet discussion forum called Quick Topic™. They were instructed to assess the subject of boot camps from the standpoint of their effectiveness in fulfilling their "social" mission of correcting the behaviors of juvenile offenders. Between these two pre-reading activities, the goal was to observe the effect technology reading resources can have on students' engagement with text, specifically with issues presented through literature.

According to Corno and Mandinach, the objective of the planning stage of engagement is for teachers to help students develop a purpose for reading. One way to do this is by directing the students' focus to the significant themes and issues that are embedded in the text. When conducted effectively, the planning stage ideally involves the examination of a broad variety of materials that allow students to explore issues from multiple perspectives, that is, to obtain different views and types of information. The essential intent of this pre-reading activity is to encourage students to inform themselves about these text-based issues—once they are identified for them—so as to enable a more critical reading experience that goes beyond a rudimentary comprehension of the story line.

It should be noted that an ancillary purpose regarding this activity was for the students to evaluate the usefulness and "validity" of the web sites. This resource domain (that is, the Web) differs from traditional sources (library books, for example) in many ways, and it was felt there was value in asking the students to try and assess the dependability of the information.

As mentioned, the purpose of the pre-reading phase is to guide and prepare students for more productive engagement with text. As part of this process, they are directed to examine critically various materials and sources related to the text assigned to them to read. The intent is for, among other things, personal questions and feelings to come into play as a result. For example, pre-reading activities hopefully prompt students to ask: "Do I agree with what is being said on this topic? Does this material seem reasonable and does it make sense to me? Who is offering this information and what

possible biases might the author have?" Questions like these are a vital element of the planning-for-reading experience in any environment. Research points to critical questioning as indispensable to achieving a richer engagement with texts (Langer, 1992). In the Corno and Mandinach model, this process (questioning) is a key pre-reading ingredient.

In the Web environment, it is important for students to evaluate critically the sources themselves. Teachers need to make them question or be prepared to question—to some degree—the legitimacy of the resources being used because of the proliferation of these information sources and the lack of any systematic accreditation of many of them. In other words, there is a vast amount of information "published" on the Web that does not go through the same accreditation and "vetting" process as traditional books and periodicals do. The Web is also relatively new as an information resource, and anyone can place whatever they choose to for public consumption. It can be fact, fantasy, opinion, conjecture, canards, and so on. As a result, students need to be able to evaluate, for example, what is opinion from what is documented fact, and whether or not what they are reading is biased.

Lorraine kept this in mind when she selected the Web sites on boot camps her students would use as part of the pre-reading Web Quest experience. She screened each of the sites for content, degree of professionalism, and whether or not the site displayed any apparent bias. She was also careful to select sites that would represent both positive and negative information about boot camps.

As part of the Web Quest exercise, Lorraine told her students they would have to post their views about boot camps on the Quick Topic™ discussion forum. She asked them to take time forming their own judgments about boot camps based on their Web Quest readings. Specifically, they were asked to think through whether or not they felt boot camps were an effective means of dealing with juvenile offenders.

"It Got Me Interested" (Kate, Beth, Naomi and Ethan)

Lorraine and I observed the students as they began reading the Web Quest materials. There were a number of observations we immediately made that were unique

to a technology-based learning activity. First, we both noticed how rapidly the students switched from one Web site to another. They appeared to scan the text on a site within a matter of minutes. Second, if a site seemed useful, they would share their reactions with other students, as well as quickly jot down notes. Comments we overheard among Kate, Ethan, and another classmate, Jessica (a pseudonym), who were seated at adjacent computers, reinforced our impression of a nearly instantaneous evaluation of resources. Third, their conversation also indicated that—despite the very quick mode of exploration going on—there was in fact an appreciation of the issues surrounding boot camps and juvenile offenders.

> Ethan: "Hey, look at the second site, the one with the pictures on it. It's gross the way that camp was set up. The kids dug the toilets, cooked the food . . . everything. Home would feel so *great* after being at a camp like that for awhile."
> Kate: "Yeah, yeah . . . I saw that one. You're right. Boot camp like that would make you never want to get in trouble. Did you see that other one? That one with the state rules for kid offenders?"
> Jessica: "No, I skipped that thing . . . too long. Plus it was like a police department site or something. . . like official . . . gray . . . bad pictures, crummy color."
> Kate: "But what it said about what happens to kids if they don't go to boot camps was good. It said they have a police record for the rest of their *lives* if they don't go to a camp, but if they go to a camp, they get rid of the police record."
> Ethan: "Where'd you read that? That police site? (Pause as student leans over to read Kate's screen.) Yeah, that is pretty good. I'm gonna write that down."
> Kate: You owe me one.

As may be evident from the preceding excerpt, a definite impression was made on Kate and her classmates. The information on the several sites quickly engaged their interest, and started both a thinking process about and a discussion of the impact of boot camps on the lives of juvenile offenders. Very quickly, technology's impact as a pre-reading resource was apparent: it enabled the students to 1) more quickly find and read, and then share reviews of the content; 2) to question the purpose and "humaneness" of boot camps; and 3) to question the nature and quality of the Web materials they were using. The students' engagement, all in all, was unique in that a comparable reaction through traditional means would probably take longer to materialize, and possibly not have the same sense of discovery and immediacy for the students.

Take, for instance, Beth and Naomi, who were using a computer a few seats away from Kate. They accessed a site that listed the names and "crimes" of juvenile offenders. The content on this site prompted them to pose and discuss what for them was a key question, namely, what is officially considered a crime? The information they read gave them a context within which to compare their own ideas of what constitutes criminal behavior and appropriate punishment.

> Beth: This is just a list.
> Naomi: I know, but look over here. It tells what the kids did.
> Beth: I'm sorry, but I can't see having to go to boot camp for shoplifting. I mean it's wrong and all that but not enough to get sent away from home.
> Naomi: Yeah, but here's a kid who got sent away for stealing a car . . . now that's a crime . . if you ask me.
> Beth: Down here it tells you how long kids have to be at a camp depending on what they did . . .also what cities the kids come from.
> Naomi: Yeah, and look it's mainly city kids at the boot camps. That figures, well, I guess it figures.
> Beth: Like city kids are bad kids? (Short laugh.)
> Naomi: Well, no, not all the time. What is this site anyway?
> (The girls examine the title and contact information on the site and discover that it is was posted by the criminal justice department of a major American university).
> Beth: Look, it's a good one, it's real.
> Naomi: It's a little boring too . . . pictures or something would've helped.

Again, as with Kate and her group, there was evidence of views being exchanged that were more critically informed because of access to information or multiple perspectives. Naomi and Beth briefly engaged about the type of children (likely to be) at these camps, as well as compared the crime against the apparent severity of the punishment (that is, confinement in a boot camp). Finally, they also briefly assessed the validity of the site, accepting it as a "good one" because of its association to a university.

Naomi and Beth also examined a Web site that was not part of Lorraine's original Web Quest. It was a link that appeared to have been added after Lorraine completed the Web Quest. This site featured graphic photographs and stories of malnourished and abused youth at a particular boot camp. The site was identified as being the work of a group of "concerned parents" from a small mid-western town. It reported that there were investigations being conducted into juvenile deaths at the camp. This site ended up

drawing a good deal of attention from most of the class, and triggering a number of comments on the Quick Topic™ forum. In the general excitement, few of the students remarked on the site's validity in spite of a reminder from Lorraine. The nature of the content, and its identification with a group of parents, may have made the students feel there was no need to question it.

Taking as a premise that these students already had some vague to elementary sense of the existence and nature of boot camps, Kate, Naomi, Ethan, and Beth—at the end of the Web Quest session—all registered a "change in thinking" regarding the boot camps' effectiveness as juvenile correctional facilities. This became most obvious when they shared their thoughts on the Quick Topic™ discussion forum. Their comments, in all four cases, exhibited (as hoped for) the realization of the primary objectives of Corno and Mandinach's pre-reading phase: critical thinking *about* and connections on a personal level *to* a key issue in the novel they were preparing to read. In short, the Web activity helped prime them for more meaningful cognitive engagement with text. Using it for the main pre-reading exercise seemed to accelerate the beginning of this engagement.

> Kate: I thought that boot camps were a good idea for juvenile delinquents, but now that I've read deeper about it, I believe that it is seriously WRONG! Many kids who go there still end up going wrong after they leave. Also, there are many who have died while "being corrected" at the camp. Also, the humiliation they go through is awful. They are separated from everyone, all alone. When they come back, they are embarrassed to talk about their experiences. They get yelled at and they are humiliated in front of other kids which is an awful thing to go through. Some kids might not be athletic and might not be able to hold their own and hold out through the day in a boot camp.

Kate, who self-authored as "I'm Different," registers a definite change in opinion about the purpose and acceptability of boot camps as correctional facilities following her use of the Web materials. While she does include some exaggeration—"many" campers died—she also forms a judgment about boot camps based on her reading more "deeply," reading the "facts" so to speak, or at least information she trusts. She also evidently connects personally to the material, noting the embarrassment and humiliation involved

for offenders, and saying about one facet of their experience, for example, that it is "an awful thing to go through." It is clear she was affected.

Interestingly, Kate also "connects" to their plight both as an outsider and as an athlete. Some background is needed here. During our initial interview, Kate told me about her sense of alienation from her new classmates and school environment, that she herself felt like an outsider. So, her connection to the feelings of alienation and humiliation experienced by offenders at the boot camp was very personal indeed. She knew exactly what it felt like—her personal experience (admittedly somewhat vicarious and at a remove) enabled her to understand it more than her classmates could. Also, her comment about athletes being able to "hold their own" in such situations seemed to indicate that as a group they could cope better with such challenges, and that by definition (as an athlete), she herself could be expected to hold her own.

When I discussed with Kate her feelings and comments about boot camps, I asked her if she felt that writing her views on an Internet discussion forum made her feel she was "going on record" with her opinions.

> Kate: Yeah, I guess it does. . . but I wasn't really thinking about that when I was writing.
> PC: You weren't thinking that other people would be reading what you wrote on the discussion forum?
> Kate: Well, sort of I was. I was thinking mostly about my classmates reading it because they were right there in the chat place with me.

I also asked her what I viewed as the key question in all of this, namely, if the pre-reading experience in any way was influencing her feelings regarding the book she was about to read and about the character Stanley.

> Kate: Yeah, about Stanley. What you asked me about Stanley. I do think that when I read the book now, I'll be more interested in finding out how Stanley handles it at camp – the Green Lake stuff. . . how bad it is . . also, I'll wonder if he'll be tough enough to handle it or not.

Naomi, too, registers a change in her thinking and feelings about boot camps. Here the process is mostly one of switching from an earlier, uninformed view, to one of—now that she is able to make an assessment because of the pre-reading activity—

critically questioning their social purpose. Once again, this is clear when she posts her thoughts on the Quick Topic™ forum. While Naomi did not make a personal connection to the subject as Kate did, her response was equally thoughtful and clearly informed by her Web Quest readings. For example, I asked her what she had thought of the Web sites that suggested boot camps might be useful.

> Naomi: At first I thought boot camps were helpful in improving adolescents' bad habits and attitudes. Now, I am having second thoughts on how effective they really are. From the researching we did, there were more sites on deaths of teens in correctional facilities that there were on how a teen had improved. Therefore, I believe that juvenile correctional facilities are not always the best way to go. When kids kill, it's a crime; when they die, it's an accident.

Naomi, who self-authored as "You Gotta Be Real," is quiet by nature although straightforward too. She likes, she says, to "speak her mind" when something bothers her. Her discussion forum response to the Web Quest research, while it included some exaggeration (like Kate's), also made a strong statement about the rights of juvenile offenders— "When kids kill, it's a crime; when they die, it's an accident." Here, obviously, she is speaking her mind. What she has read on the Web has colored her view about boot camps to the degree she is almost cynical about them. Yet the view is a product of understanding an issue a little more deeply, too.

In the conversation we had following the Web Quest session, she, like Kate, also said that she wanted to see how the "business of boot camps" would be handled in the novel *Holes.*

> Naomi: Well, there were a few that said good things, but the other ones, the bad ones, were stronger.
> PC: So, how do you feel about reading *Holes* now? Does this change your thinking about reading the book at all?
> Naomi: Well, actually, I already read the book a couple of years ago. But I didn't get it then. I'm going to read it different now. I'm going to be on the lookout.
> PC: On the lookout?
> Naomi: About the boot camps and what it was really like for Stanley living there.

Both Kate and Naomi's comments strongly support two valuations: first, that the planning-for-learning (pre-reading) experience conditioned them for a more critically

engaged relationship to the text they were about to read; secondly, that this conditioning was partly due to and accelerated by the use of Web resources.

Beth and Ethan's experience was similar in nature to Kate and Naomi's. It was apparent from their pre-reading use of the Web resources that their views on boot camps was grounded in an arguable context, that is, their opinions were influenced by and grounded in "data." Their pre-reading experience also had them looking forward to seeing how boot camps were depicted in *Holes*, again feeling they could now do so from an informed perspective (although that was not the terminology they used). Ethan, for example, mentioned that he "wanted to find out whether or not campers would starve or die or anything" in the novel or if it would be a "fair camp." The impetus behind his questions, it can be said, was singularly generated by what he had learned about camps on the Web.

"No Big Difference" (Corey)

Corey was different. Unlike the other student participants, his comments were brief and exhibited little in the way of 1) registering a new understanding; 2) critically evaluating the resources; and 3) making personal connections. When I asked him if learning about the camps on the Web before starting the book got him more interested in what he was about to read, he gave a small smile and said, "It's no big difference."

Lorraine and I agreed that Corey never really became involved in the pre-reading activities. Although it appeared that he was engaged in the Web Quest activity, in fact it may not have been the case. He sat at a computer with two girls, Lee and Jenny (pseudonyms), with whom he examined the Web sites. They all seemed to be involved in animated conversation about the Web materials, but as Lorraine put it, their comments were really "surface." It was apparent they were distracted by one another and basically caught up in "doing their own thing." They were not focused on the content being displayed, nor apparently critically engaged at any level.

> Lee: Eeeuww. Look at the little skinny kid.
> Corey: Yeah, he looks like your brother.
> Jenny: I would so hate to get sent to a boot camp.
> Lee: Me too. No way.

> Corey: Here's a cop site. Where's the one they found with the kids who died on it?

The comment Corey posted to the Internet discussion forum was not particularly thoughtful either. Corey, who had self-authored as "I'm Tough," had told me of his disinterest in school in general and in reading in particular. This self-assessment was more than borne out by the negligible effort he put into his pre-reading experience and by his results. This, despite the fact that at the start of class he expressed enthusiasm for "getting to use the Web in school."

> Corey: I think boot camps should be illegal, I have read about many different situations where children have been treated horribly and even murdered. I was on a site that listed names of young teens who were killed while in boot camps and the list goes on and on.

Not only were Corey's comments brief, they were also marked by exaggeration and misinformation. From our standpoint, this attested to our impression that he either had not read carefully or had not read at all. As powerful as Web resources are in capturing students' cooperation and interest, they did not work for Corey in a pre-reading activity. For Corey, reading is reading, whether on the Web on from a paper text didn't seem to make a big difference.

Summary Comments

When Lorraine and I reviewed the students' use of Web resources (Web Quest and the Internet discussion forum) for pre-reading purposes, we agreed there were significant benefits for the reading process as envisioned by Corno and Mandinach. In other words, cognitive engagement was clearly given a boost in this regard. The combination of activities we used did appear to help the students inform themselves, to connect them to the subject/material, and to whet their reading appetites. In the majority of cases, comments made by the student participants while examining the Web Quest resources demonstrated that they were 1) critically evaluating both the content and the resources; 2) benefiting from the easy access to multiple perspectives; and 3) more sensitized to the key topic embedded in the novel *Holes*—the use of boot camps as

correctional facilities. Four of the participants spoke of needing to read *Holes* "carefully now"—not just for the story line, but to follow the main character's boot camp experience more closely so as to be able to evaluate it in the context of what they had earlier learned. In short, the pre-reading experience, and the integral role and use of Web resources, enabled the students to enter the reading experience itself with a sense of critical and social commitment regarding the key issue in the novel. This would raise their reading experience beyond being just an exercise in story comprehension.

Before leaving my discussion of the pre-reading phase, it is worthwhile at this point to briefly consider Asselin's (2001) question regarding classroom use of technology resources—whether they, on a case-by-case basis, offer anything that could not be accomplished equally well without them. Granted my scope here is limited, I believe that at least during this exercise with Lorraine and her students the Web resources made an appreciable difference. Simply put, they accelerated reaching the pre-reading goal as set by Corno and Mandinach, namely, helping students take an initial step towards cognitive engagement with a text. The vast and varied body of information available on the Web offered a nearly matchless resource and means for quickly finding information and multiple perspectives. This was especially true given the nature, currency, and controversy of the topic itself (boot camps), the one that they would be encountering in the text. Traditional resources—magazines, newspapers, and other print materials—would not have offered such an easily accessible, broad, and current range of views on the topic.

Additionally, the Internet discussion forum has a dimension to it not commonly available to or used by students, and that is its prospective worldwide audience. The thought of publishing to the Web was both exciting and alarming to the participants. It gave them a means of sharing their responses not only with their immediate peers, but also with a vast and unseen "public." As a result, it was both a little liberating and a little constraining. But in either case, knowledge of this "publishing" opportunity persuaded them to develop their response more critically.

Me and the Issues: Connecting to Reading

Upon concluding the pre-reading phase, Lorraine offered an optional "during-reading" activity. Its purpose for us was to examine the effects of technology on students' ability to "connect" with text. "Connecting" is the second phase in Corno and Mandinach's cognitive reading engagement framework. In general, according to them, students are "connected" to a piece of literature when they are relating their own life experiences to the experiences of the literary characters. When this dynamic is taking place, students are by definition cognitively engaged with text. Making a personal connection during reading is at the heart of this particular dynamic.

When engaged with text in this manner, students should also be prompted to ask questions of themselves such as: "How do I connect to this story and what are my feelings and opinions about the experiences of the characters?" "How do my life experiences relate to or reflect the themes discussed in this book?" Rosenblatt's (1995) concept of emotional parallelism helps to shed some light on this process: students, through reading, have a means of seeing how their inner lives reflect and relate to the experiences of others. Through this type of connection to the text, for example, students are helped in appreciating the various life roles they will have beyond the classroom community, roles that include being responsible members of a larger social community. Ideally, strong connections to literary texts will lead student readers to a sense of their own social agency.

It was with this in mind that Lorraine and I felt that a "during-reading" activity would be useful to try out. We had two reasons for doing it: first, to test this phase in Corno and Mandinach's schema, that is, their view that connecting to text is a means of promoting cognitive engagement; and second, to test the value of another Web resource. The Web resource in this case was one called Solve-a-Problem. Our goal was to see if this resource could help the students make precisely such text connections to the characters and events in the novel, *Holes.*

Solve-a-Problem is a Web resource that can be used to present students with real-world scenarios. In these scenarios are a set of problems that are similar to the ones

facing characters in novels they are reading. Students are not only asked to "connect" to the problems of the literary characters, but also to offer possible solutions to the problems. For example, in *Holes* the character Stanley deals with problems such as adolescent bullying, peer dominance, and doing whatever it takes to belong to a group. The following Solve-a-Problem scenario asked the students to consider Stanley's situation in light of their own experiences. They were presented with a list of fairly blunt questions. When they came up with "answers" to them, they would publish them on the Web.

> **Scenario 1: Sense of Belonging.** Stanley runs into trouble at school when Derrick Dunne bullies him and no one defies Derrick. What would you do if you saw a classmate being bullied by someone? What do you think it would take to get people to stop bullying? Do you think young people sometimes do things they would rather not do in order to belong? What makes young people feel like they belong?

Before we began this activity, Lorraine and I had discussed the issue of "audience," specifically how a sense of audience changes for students when they are publishing their writing on the Web. In the traditional classroom environment, written responses to reading assignments are usually evaluated by a teacher, and possibly shared with the class. Publishing on the Web, however, gives students the opportunity to present their thoughts to a potentially global audience. Lorraine and I agreed that this capability opened up a whole new dimension to the students, and should be used. Although Lorraine was comfortable with this decision, she then felt compelled to repeatedly remind her class to be mindful of who might be reading their words. She cautioned them that they were addressing a community much larger than Meadow Brook Middle School, one that required of them clear and mature communication skills.

"When you write your solutions, kids, keep in mind that we can't really know who may be reading them. It might be other classes from around the country or from around the world. Remember the Literacy Junction characters who were created by the Russian students? Those students might read what you write. Keep the possibility of an international audience in mind and write what you really believe. Write what you would be proud of and don't forget to edit your work."

Then we let them go. Following are the essays posted by three of our student participants: Beth, Corey, and Ethan. Because of the personal connections that were woven throughout, each essay is presented in its entirety.

"To Belong or Not To Belong"

Beth was the first student participant to post a Solve-a-Problem essay to the Web. She told me that she composed it at home, and that she was "glad" she had not read anyone else's before she wrote hers. In that light, Beth's essay has a little more interest in that it is ostensibly not affected by peer expectations or input.

> Every single day there is an adolescent being bullied around. And every single time they are bullied, people witness the event happen. Only a couple of people in a hundred do something about it.
>
> I myself have witnessed many accounts of bullying. However, like everyone else, I do nothing. Well, actually, I help jeer, tease and push the peer that is being bullied. I know that is not right, but given a choice between sticking up for the poor person and being labeled a loser or going with the flow . . . well, I would choose the later.
>
> It is human nature to want to belong to a group, even if the friends are backstabbing or abusive. To a teenager, it is better than not having friends. However, belonging to a group of friends does not always mean the person feels like part of it. A person can be in a clique, but feel like an intruder if the others leave him/her out in private, including him/her in public only. If that happens, and if the person is perceptive enough, the person feels used, not content and happy.
>
> It is, however, possible for everyone (even people we consider dorks) to belong, really belong, in a group of friends and feel wanted. Everyone has an interest someone else shares, be it bug collecting, sports, or even scoping out the hottest guy/girls in school. The only problem is finding them. People don't have to look very far, however, because there are groups of every kind in every school.
>
> People have different criteria when it comes to considering a "Sense of Belonging." Some are satisfied with just "school friends," friends you hang out with only at school. Others prefer to have friends by their side all the time. For me to feel wanted, I have to have friends to hang out with in school and friends to hang out with outside of school too. Basically, I have two groups of friends to feel as though I belong.
>
> When yearning to belong, people do desperate acts. For example, sororities and fraternities make you do things to become one of them. The tasks range from letting them beat you up to flashing someone in public. When dealing with groups, people tend to leave their senses and focus on their desire to belong.

Beth's self-authored portrait, "Be Careful, Be Happy," describes a student who enjoys a positive and supportive home life but who is also very conscious and troubled by the problems adolescents face each day in school. She expresses pleasure in being able to be "insightful" in her AG classes, but admits, too, to the "the anger that builds up inside of me" when people are "being bullied or teased" in school, pointedly bringing up how "kids sometimes pick on each other for the smallest things, the smallest jealousies." Through the Solve-a-Problem activity (again, an activity that relates to the bullying Stanley faces in *Holes*), Beth had a new means of grappling with her feelings regarding this topic. Additionally, she was able to publish her response (her feelings) to an audience that reached well beyond her immediate peer group, one which was, as she put it, probably "way more understanding than some of the people in my class."

In what is quite a candid response, Beth reveals she herself was not immune to the pressure. For example, adopting a confessional tone in the second paragraph of her essay, she admits that she "knows what I'm doing is not right" when recounting how she had gone along with classroom bullying. She concedes that the pressure to "belong" is great and that the "flow" can carry you along. Beth's candor is helpful in appreciating how difficult adolescent culture can be. She also offers an interesting contrast to the conclusions made by Sprague and Keeling (2000) in reference to the gender research of Brown and Gilligan (1992). Sprague and Keeling contend that "adolescent girls, ages 12-13, tend to hide their strong feelings, to repress anger and outrage, so that they will receive approval from peers and adults. They become unable to articulate who they are and what they value" (p. 47). In Beth's case, she *does* articulate who she is and what she feels about an adolescent matter that is of deep concern to her. Not only that, but she publishes her feelings and views—what she values—to a potentially global audience. In one stroke, she in effect discounts the need to gain the "approval" from her peers.

Walther's (1996) construct of an idealized audience perception (which is a dynamic possible in Web communication) *may* be a factor in Beth's willingness to present her feelings so openly to a Web audience. The thinking here is that by not having to encounter any facial or physical reactions to their words and opinions, adolescents can

assume what they are saying is being received by a supportive non-critical audience. This in turn makes them more likely to be willing to "speak the truth" in the Web environment. This point is worth keeping in mind when assessing Beth's decision to make her feelings quite public. On the other hand, it must be balanced with the fact she also took the risk of reading her essay to her classmates.

Beth opted to read her essay to her classmates during the final sharing of student projects. She later told me it was very difficult for her to share this piece of writing with them, but that she was glad she did it. "It's not easy, but it's important to say these things or else people just keep on doing them." Most of all, she told me, she was glad she was able to share her essay on the Web. The thought of sharing it globally was important to her.

"I wondered what the Russian kids on *Literacy Junction* might think about it, if they read what I wrote. I wondered if it's the same over there."

In summary, Beth proved out the purpose and value of the "connecting" phase, and the use of another technology resource. She did become involved in making personal and cultural connections to the novel; that is, she became cognitively engaged with it. The use of the Web resource also gave her a sense of a widened audience, which for her was a stimulating factor. She admitted she felt pressure from her peers and her immediate environment, but her personal sense of social "justice," along with her need to be honest, enabled her to overcome it. The assignment gave Beth a way of dealing personally and "publicly" with the overall issue—bullying in the adolescent world—as well as the pressure to be part of a group, and having the moral courage to speak out against bullying. In short, by going on record with her feelings, Beth took a first step toward addressing a troubling social reality for adolescents. She opened an "internal" conversation with herself about what is right and what is wrong, and had the courage to share that conversation with others.

"Bullies"

Corey also wrote an essay in response to the Solve-a-Problem scenario on bullying. While his perspective was different from Beth's, his essay was equally

thoughtful and honest, as well as strikingly perceptive in some ways. He told me he had read Beth's essay before he wrote his and thought it was "good." Corey's essay, "Bullies," follows.

> Usually, when I see someone being bullied, I don't really say anything if the person being bullied can take up for him or herself but doesn't, and that is why the person is being bullied. When I see someone like Dana (a friend of Corey's who is small) being picked on, I will walk up and the bully will almost always back off.
>
> All students don't feel like they are part of a group, but I think it is possible. There is always somebody you can relate to. You just have to find the person so you can find someone to talk to and joke around with. Having a group to belong to is simple; it's having friends to be around and to connect with.
>
> It is almost impossible to find a teen who didn't ever do anything because the crowd did it, even though he/she may have thought it was wrong. There are many cases where teenagers listened to themselves and did what they thought was right, but not always. All teens want to be popular, even if they don't admit it. When they are able to do something that will make them feel they belong, then it is more likely that they are going to do it. I myself have done things that I regret, but I did them to be part of a crowd.

Following his somewhat disappointing behavior relative to the Web Quest activity, this essay was a pleasant surprise for Lorraine and me. Corey, who self-authored as "I'm Tough," showed much more interest and much more cognitive engagement in writing and sharing his Web essay on bullying. If nothing else, the topic seemed to be of natural interest to him. In fact, he told me it was a topic he "knew about." He even opted, much to our surprise, to read his essay to his classmates in the final sharing of student products.

On "presentation day," Corey stood at the front of Lorraine's classroom and read his essay in a low voice. He blushed a little while reading it and did not raise his eyes to the class. From what I knew of Corey (as both a student and a person), this was not a comfortable form of communication for him. But there he stood, on the one hand cockily telling his classmates of his ability to deal with bullies when the need arose and, on the other, confessing his own need to go along with the crowd, his own need to be accepted. "I myself have done things that I regret, but I did them to be part of a crowd."

The rest of the class paid close attention to Corey's words. Here was the student with the most social authority in the room admitting that he too needed to be part of a crowd.

To some degree, Corey was affected by the story of bullying in the novel *Holes*. How much of it he read, or how carefully, I do not know. But he had enough knowledge of the plot to make a personal connection to the character and the issue. It appeared that the issue in general was certainly "engaging" to him, if not the reading per se. Whether the opportunity to be "published" on the Web made a difference in terms of what he said, I also am not sure. Would he have written with the same level of candor was not clear either. I asked Corey this question and he was typically non-communicative.

> PC: Corey, did the fact that this essay was going on the Web make any difference to you?
> Corey: Not really.
> PC: So, you weren't really thinking that lots of other people would be able to read what you were thinking about bullying?
> Corey: Maybe a little bit.

The more I thought about it, the more I realized that someone reading Corey's essay on the Web could not have fully appreciated its significance like Lorraine or I, or his classmates. Without being aware of his somewhat reticent nature, it is difficult to appreciate the value the exercise perhaps had for him. A Web reader would also not know of Corey's social status and authority within his peer group, and his ability to influence others to his point of view simply because of who he was. In this instance, Corey's physical presence and his status lent impact to his words. Beth's words, on the other hand, could be appreciated either locally or "virtually."

Even though it was difficult to determine whether or not the sense of having a global audience influenced Corey's writing in any way, he did "step up" to this assignment. His essay showed evidence of the dynamic of "connecting," that is, relating his own experiences *with* and feelings *about* bullying to the experience of the literary character. He even displayed a surprising level of reflectivity. The topic of bullying and how it "works" in the adolescent world seems to be important to him. His essay made it

clear he had informed views and feelings about it. Possibly, he had never articulated them for himself before. Perhaps, as Corey put it, he "listened to himself" and shared what he heard with others.

"The In Crowd"

The final student participant to take part in the Solve-a-Problem activity was Ethan. Ethan told me he wrote his essay at home, and that he had not read any of the other essays when he wrote it.

> If I saw a classmate being bullied, I would probably stick up for him. I would probably go up to the bully and tell him to lay off the other kid, then I would tell the kid to try and stay away from the bully. I believe that everyone would treat each other nice if everyone acted normal and were nice to other people. If people acted this way, then everybody would feel like they fit in. I think that when people my age have lots of friends that respect them and are somewhat popular, then they can feel like they are part of the crowd. Lots of times I think people do things just so they can feel like they are accepted, but I do not think that people should do this. I believe that a person should just act like themselves and be nice to others. If a person does this, then they can feel a sense of belonging.

Ethan self-authored as "One of the Guys," telling me during our initial interview session that he is "just like everybody else" and does "pretty good in school, pretty much like everybody else." His behavior and views, including what he wrote in his Web essay, reveal a student evidently with little desire or need to question the social hierarchy in school or to reflect on any issues outside his local environment. In respect to the issue of bullying, he states in his essay that he feels it is wrong, and that he would "probably" stick up for someone being bullied. He is aware that "lots of times people do things just to be accepted." His essay also has a definite "spin," namely, his view that if everyone were "nice" to one another, the usual problems (such as bullying) would go away. Although in his essay Ethan registers being conscious of the pressures kids experience during adolescence, he appears to be waiting for students to become "nice." Looked at another way, the responsibility is not in his hands.

I talked with Ethan about the "during-reading" activity, and he was open about his level of involvement. He told me the topic was interesting to him, and that bullying can be a problem in school, but that his main agenda was to get the assignment finished

and to make sure it was long enough. I asked him how he felt about posting what he had written to the Web. He answered that it was "cool" and offered that his buddies from another school would be able to read it. However, he did not show any sense of pride or real interest in what he had written. He did not opt to read his essay to the class. Instead, he showed a Camp Green Lake T-shirt he had designed (Camp Green Lake is the fictitious camp setting in *Holes*). If nothing else, it showed the terms of his level of engagement to the novel.

Summary Comments

The levels of cognitive engagement to be observed during what Corno and Mandinach characterize as a "connecting" activity varied with our participants. Once again, making a personal connection to a character/plot in the novel was the criterion for judging whether a certain kind of cognitive engagement occurred. The evidence on which to base the evaluation was in the essays the students published to the Web.

Three of the participants showed some or a marked degree of relating their personal experiences and feelings to the assigned text. Each one, in other words, showed they were "connecting" to the reading. Each one also expressed different feelings about the issue. Similarly, sharing their views with a global audience also appeared to affect two of the participants. Beth was very conscious of the potential global audience; she also seemed to view it as a way to discover just how universal a condition bullying was. Corey may have been equally conscious of the global audience, but did not choose to expand on his feelings about it. Finally, Ethan, appeared to have little interest in who might read his words. At the same time, he did not have Beth's zeal or Corey's seeming need to confront the issue.

Again, the question must be raised whether this same activity (writing a response about a social issue embedded in a piece of literature) would have worked as well if the students had written "paper" essays to be shared only with the teacher and/or classmates. My feeling is that the "connecting" experience would not have been as powerful. Based on Beth's experience alone, I believe that "publishing" to a wider audience can serve to stimulate both reflection in adolescent writing as well as a sense of social agency.

Corey's essay, too, although he somewhat dispassionately expressed his feelings on the issue, demonstrated an uncharacteristic degree of personal reflection as well as a sense of social sensitivity. The term "uncharacteristic" is only used to mean views of this nature were not something he "aired' publicly (no matter how sensitive, for example, his private feelings may be). In short, both Beth and Corey appeared to benefit from this "during-reading" exercise: they both made personal connections to issues addressed in the book, and for both the Web seemed to open them up in terms of sharing their feelings. It is difficult to precisely pin it down, but the sense of the wider audience seemed to stir in them a greater willingness to communicate.

One issue for me was whether my evaluation of what took place was influenced by my role as researcher. I asked myself if the essays were simply examples of students meeting an assignment, of saying what they thought their teacher wanted to hear. Was I "reading" into all this more than was justified since it was my study? I do not believe this is the case with my views on Beth and Corey. Their writing and comments to me reflect a true personal engagement with the topic and the reading. In the case of Ethan, such a view is harder to entertain. But, after all, he did make valid points, he did think about the issue of bullying, and he did speak of the very real adolescent pressure to conform to peer expectations, expectations he himself works hard to meet. Again, the only conclusion I feel tempted to make overall is that the Web seems to promote greater comfort in a student with his or her identity and more of a willingness to reflect the views of that identity.

And finally, and from a more modest perspective, I considered that the first step in adopting a position on social issues (such as bullying) may simply be to voice one's thoughts publicly. If in fact this is the case, or part of the process, then all three students, each in their own way, took the first step.

Keeping Up With What's Important: Selecting Relevant Story Threads

The third phase in Corno and Mandinach's framework is called "selectivity," a reading dynamic that involves the comprehension of what is taking place in a piece of literature. For the purposes of my study, Lorraine decided to try to implement this phase

through small-group literature circles and a Socratic seminar involving the whole class. While neither one directly involved the use of technology, all of the technology-enhanced activities (Web Quest, Internet discussion forum, Solve-a-Problem, and Write-a-Dialog) did influence the literature circles and the Socratic seminar to some degree. This will be noted later.

In terms of the general purpose of the selectivity phase, the goal is to help students discern relevant narrative issues from minor details and to comprehend a text's main story line. Lorraine used the two activities (the literature circles and the Socratic seminar) as the means for her to determine her students' ability to read "selectively." Additionally, because of state and district emphasis on standardized tests and accountability, Lorraine could also use these activities to see which students were not keeping up with the assigned readings and, therefore, might not be prepared for their end-of-grade tests.

"It All Depends on the Group You're In"

Lorraine asked the twenty-seven students in her class to divide into six literature circle groups with four to five students in each group. Beth, Naomi, Ethan, and another male student were in a group together. Kate worked with three other female students, and Corey was in a mixed-gender group of five. The students were asked to develop discussion questions for their literature circles at home. They were directed to base the questions on key points in the novel. At the end of the discussion sessions, students were told they would record what they had discussed with their group and turn in their responses for evaluation. (Lorraine told me that she normally conducts bi-weekly literature circle sessions with her students, but due to time constraints resulting from the addition of technology resources in our activities, the groups met only twice over the course of the study.)

As we had during the Web Quest activity, Lorraine and I observed the students as they participated in the literature circles. While behavior patterns changed slightly depending on where Lorraine and I stood, we were both always aware that certain groups were more productive and on-task than others. Corey's group, for instance, which

Lorraine said included the most popular students in the class, appeared to be off-task much of the time. There was little evidence of a literary discussion going on, and the reports the group handed in at the end of class were extremely brief.

Kate's group spent the fifteen minutes Lorraine allotted for the literature circles far more productively. These students were observed questioning one another on aspects of the story line, considering the responses in turn, and helping one another work through the more confusing parts of the *Holes* story line (a multi-layered plot with an historic thread that was not always easy to follow). The discussion in Kate's group seemed to serve Lorraine's intended purpose well: they demonstrated they were able to understand the story line ("selectivity"); they did refer, on occasion, to what they had learned about boot camps from their Web Quest research ("planning" or pre-reading); and they did relate to the themes that were targeted through the Solve-a-Problem activity ("during-reading" or "connecting").

Beth's group, which included Naomi and Ethan, by and large also managed to stay on-task and did exhibit an observable productive engagement with the text, but they slipped into off-topic conversations from time to time. Beth and Naomi posed open-ended questions, while Ethan's were more detail-oriented. When I asked Ethan about his questions, he told me he was "just checking to make sure everyone read the stuff." Beth told me she thought the circles worked "okay," but that it all depended on the group you were in and that hers was "average this time."

Lorraine is a proponent of traditional face-to-face learning and has used literature circles successfully in the past. She was not, however, particularly pleased with the way the circles worked during the study. A good deal of our study time was spent trying to get the technology to function properly, some of which time Lorraine would have had available for the literature circles. As a consequence, the time for them was reduced and possibly the quality of the work as well. She also told me that she wanted to "keep the reading moving," that she did not want to "take too long pouring over the story . . . kids get bored if you spend too much time with any book." Because of this situation (that is, trying to conduct the literature circle discussions quickly and not on a regular basis), we

decided it would compromise their use as a means of evaluating the "selectivity" dynamic. We also agreed that the technology-enhanced activities, being relatively new to the students and therefore exciting, may have made the non-technology-based activities less motivating by comparison, with the result that the students' receptivity to the literature circles may have been affected.

"I'd Rather Talk About the Kids On My Bus"

The Socratic seminar—the second activity Lorraine used for the purpose of gauging the selectivity dynamic—had more positive results. Lorraine began by asking the students to push their desks aside and to form a large (29-person, including Lorraine and me) circle with their chairs in the center of the room so that "everyone can see everyone else's faces." Lorraine then began the seminar by posing open-ended questions to the class that called for "considering the main ideas in the novel backed by specific details from the story line, by proof based on what you've read and understood of the plot." She told the students she was looking for active participation and evidence of critical thinking (rather than on familiarity with minor details). She also expected *everyone* to get involved in the seminar. Finally, she invited students to pose their own questions to the group.

The seminar was a little slow to get started, but after a few minutes (and some prodding from Lorraine and me) students began responding. The topic of most interest to the class involved determining what Stanley had learned from his experience at Camp Green Lake. The following excerpt gives some idea of the nature of the discussion, as well as some proof of the selectivity dynamic in operation. In general (not entirely as will be noted), the students appeared to have a close understanding of the broad story line, as well as to be able to separate relevant material from minor detail.

> Beth: He learned to stand up for people like Zero (an outcast at the camp). Stanley stood up for him, I think, because he remembered what it felt like to be an outcast in his school.
> Ethan: But he wasn't that bad of an outcast when he went to the camp.
> Student1: Yeah, only because everybody there was an outcast. It was a camp full of outcasts.
> Naomi: So, he kind of learned not to make such a big deal about what people think about you because nobody at the camp was popular or anything so it didn't matter that much.

Student 1: But he also learned that people have got to look out for themselves when the kids in his cabin turned against him.
Beth: He ran away from that. I'm not so sure that's looking out for yourself.
Kate: Yeah, well some people can't look out for themselves.
Student 1: Yes, they can. Anybody can.
Student 2: Not when there are a bunch of real bullies around . . . if you don't think so, you should see the kids on my bus.

A lively debate followed about the degree to which people can change their own circumstances. At first, the conversation centered on the business of "bus behavior" and bullying, with students getting much more involved in "connecting" to their own lives, than "selecting" relevant story threads from the novel, *Holes.* One student who was not a participant in the study (although I wish she had been) switched the discussion over to the business of power in "higher" and "lower" groups. When Lorraine asked what she meant, she received quick responses from a number of the other students that the designations referred to who was popular and to what extent, that "there are levels of how popular you are." I noticed during the discussion (in fact I found it interesting) that the students who were from the most popular group in Lorraine's class did not get involved in this particular discussion with as much enthusiasm as those who were not in the "in gang." The latter group seemed to be venting their frustration with the social hierarchy somewhat, but no one went too far. Lorraine closed this line of debate by coming back to the text, asking students to point out instances in the book (selectivity) of Stanley's growing maturity and his new-found willingness to go against popular peer expectations. Some students were able to give specific examples while others floundered. It seemed that some had not followed the story line too closely (if, in fact, they had read the book at all) or may have had trouble doing so. Lorraine and I talked about this problem, about how non-readers manage to hide the fact until they are given a comprehension quiz.

"The Internet can't help with that," Lorraine said. "There's not a whole lot that can help with that, I've found. Even in the literature circles, kids can cover up when they haven't read. But I tell them to tell me the truth about it, and they usually do." Lorraine's own candor apparently fosters a similar grade of honesty in her students. Unfortunately,

we agreed that candor does not change the non-reader problem any more than the use of technology does.

On a more positive note, there were references throughout the seminar to what students had posted online (through both the Solve-a-Problem and Write-a-Dialog activities) in respect to bullying and to "doing the right thing." There were also references to the unfair nature of the administration at Camp Green Lake that were backed up by what the students had learned doing their pre-reading Web Quest research. Students did go back to the "data" they saw during their technology-related experience to use in their arguments. Technology did, in general, have some influence on the Socratic discussion. This "finding" was encouraging to Lorraine and me for it seemed like an excellent union of two learning modes.

Summary Comments

The inclusion of literature circles and the Socratic seminar had some unintended benefits for us. First, they slowed the nearly frenetic pace that set in when we were using technology to support the reading experience. The two non-technology-enhanced activities also offered a more familiar and predictable classroom structure for Lorraine and me, enabling us to more easily see whether students were keeping up with the reading, and to gauge individual levels of comprehension. Since Lorraine was not using a final exam at the end of the study, it would have been difficult for her to determine who was actually reading *Holes* vs. who was just doing the activities without the literature circles and the Socratic seminar. The technology-enhanced activities, while they helped stimulate cognitive engagement with the novel's themes and issues, and while they were useful in the planning and connecting stages, played only a marginal (but detectable) role in the selectivity dynamic.

I found myself questioning whether or not "checking up on students" should be part of reading instruction. Neither Lorraine nor I are overly concerned with this aspect of instruction, preferring to find ways to motivate critical thinking and thereby prompting reading as a by-product, a necessity – "I've got to read it if I want to join in." The technology-enhanced activities were primarily used to encourage critical thinking and to

help students connect their life experiences to selected topics; they were not meant to serve as a means of demonstrating student ability to be selective or to check if they were keeping up with the readings. I also question whether this kind of personal engagement with text is valuable enough to make up for the fact that it does not offer a means of assessing whether the students actually read assigned materials. Perhaps technology-enhanced activities like those used in our study are more effective when used in tandem with activities that can demonstrate the "selecting" phase of engagement, such as literature circles and Socratic seminars.

During our "exit interview," Lorraine told me that while she is open to using technology, she remains strongly in support of more traditional face-to-face learning activities. "Most of us teachers are people people. I believe there's great power in the human presence and I never want to take it out of the learning mix." She also mentioned that the Socratic seminar was her favorite among all of the activities we used. "I believe it is most important of all for students to hear each other's responses, to think more deeply, to talk more with each other."

In many ways, I found myself agreeing with the points Lorraine made. While there are benefits to "disembodied" communication (Hawisher & Selfe, 1991) and to the anonymity that is possible through the Web, face-to-face learning–immediate, interpersonal learning–is also a reality of a student's overall learning experience. No matter how uncomfortable it may be, particularly for adolescents as they are dealing with stabilizing their identities and their feelings of uncertainty, part of what they must learn to do is to become comfortable with themselves, to learn how to present themselves to others as they stand. This is not to discount what the Web learning environment offers, but rather to state that looking at Web learning and "traditional" learning as a dichotomy is not necessarily productive in my opinion, nor is it my intent.

The Interplay of Students' Cognitive and Social Learning in the Technology-Enhanced Learning Environment

The second interpretive lens I apply in this study focuses on the interplay between cognitive engagement and social learning when technology is embedded in instructional activities. My findings are presented through two overarching themes: one is called

Shared Understanding, and the other *Identity Boosts*. The first addresses the dynamic of interpersonal learning and cognitive engagement with text, that is, how adolescents learn together with technology as an enabling agent of the learning process. Note that due to the constraints within the study, this theme is viewed mostly in terms of the promise technology may have for the process. The second theme focuses on intrapersonal learning and text engagement through the use of Web activities. Here the emphasis is on personal learning with technology as an element in the learning activities.

Shared Understanding: Interpersonal Learning

The interplay between social learning and cognitive engagement is one that traditionally has been seen to obtain in all learning situations. Vygotsky's (1978) constructs of interpersonal and intrapersonal learning, which build on his concepts of intermental thinking (prompted by input from peers) and intramental thinking (incorporated into an individual's personal schema), are prominent learning theories in this regard. Vygotsky's overall view is that in classroom settings students naturally learn *from* and *with* each other, a learning process mutually benefiting to the individual learner and to the group; he labels this process as *interpersonal*. Students also learn on their own in a process whereby they turn their attention inward, focus on themselves. Here they are going through a process which involves a growing awareness of who they are and who they are becoming, in short, a process involving identity-related learning and growing dynamics. In Vygotsky's schema, this is the *intrapersonal* mode of learning—the most intense form of learning in Vygotsky's estimation. It is especially operative during adolescence, a time of particularly heightened identity exploration.

Vygotsky's constructs are at the heart of what I refer to as "social learning" in this study. Individual and group learning dynamics, respectively, intrapersonal and interpersonal learning, underlay this broader social learning that occurs during the years considered to be the most formative in a young person's life. The teacher, according to Vygotsky, passes on the values and mores of society, within the social setting of the classroom. With this dynamic as the general context for my inquiry, I review the effects

of using technology-enhanced activities on the interplay between the interpersonal mode of social learning and cognitive engagement with text.

These topics are explored in two sections that follow: one is called *Web Conversations*, the other is called *Distributed Expertise*. In the former, the single instance I examine does not have sufficient data to carry the analysis to any meaningful conclusions, but the experience was enlightening and useful for suggesting strategies that may be more successfully applied by other researchers in the field. Regarding the latter topic, I examine a learning strategy the students employed as a group to manage an activity task.

Web Conversations: "Look Behind U"

Technology, like any force or event that leads to a trend, tends to split observers and participants down the middle in terms of their views and reception of it. For example, among the concerns held by critics of computer-based instruction was their worry about the apparent solitary nature of this type of learning (Roblyer & Edwards, 2000). This view, and others like it, led some in the teaching community to believe that classrooms would be made up of rows of student automatons with faces lit up from the glow of computer screens, working and learning without saying anything, without exchanging thoughts with one another, and possibly, without the need for input or interaction with a teacher. By and large, this concern proved to be unfounded, even exaggerated to a degree.

Even though its introduction into classrooms is relatively new, a number of interesting observations have been made about the effects of technology on learning and socialization, and also on the interdependence between the two. Particularly today, when classroom use of computer technologies (especially technologies having to do with electronic communication) has increased and evolved, the highly social nature of technology-enhanced learning has become more and more evident (Kist, 2000). This is most universally true in the case of adolescent learners. For example, based on his close observations of his own daughters' use of computer technologies as learning tools, Bean (1999) states that, "Adolescents use contemporary technologies very naturally to

maintain social networks that support emerging identities" (p. 441). He also holds the view that current technologies have great potential for adolescent learning in the classroom, that they offer teachers a powerful means of integrating natural social learning processes with "school-related cognitive tasks."

Throughout the course of my study, I was able to make the same observations as Bean on numerous occasions, particularly during the Quick Topic™ exercise with the class. As noted earlier, the primary intent of using the Web Quest resource and the Quick Topic™ discussion forum was to involve students in a planning-for-reading activity (based on the Corno and Mandinach model) that included the use of technology. We wanted to see if the addition of these technology resources helped our students in forming critical opinions—for example, through the process of generating questions based on what they had learned—about the effectiveness of boot camps before reading the novel *Holes*.

My interest in this exercise had another motive, one which is a key inquiry issue informing this study. I wanted to see whether there would be any evidence of socially based learning taking place—"interpersonal" learning to use Vygotsky's label—that was uniquely fostered through the use of technology. In respect to Quick Topic™, for example, would the students "talk" about what they had learned on this Internet discussion forum (essentially a chat area); would they interact in a manner that enhanced and quickened the exchange of information and views; would a collaborative learning dynamic be triggered? I also wanted to see if the way students communicate outside the classroom would influence their school-directed learning activity and discourse. Given the characteristics of this communication mode—speed and spontaneity and multiplicity of engaged parties, among others—I hoped to see if these same characteristics would be operative in this exercise and if they would affect the discussion and how. After all, statistics indicate there is ongoing and rapid growth in the use of Instant Messaging (online chat), and that 60% of American youth under the age of 17 are involved in it on a daily basis (Lee, 2002). Obviously, here is a realm within which adolescents naturally and comfortably communicate and exchange information, use language and exhibit

critical literacy processes. The question for me was whether the dynamics of this realm could be "borrowed" for classroom learning purposes.

What follows is what Lorraine and I attempted, why our attempt was aborted, and what was learned.

"Consider this an online conversation, but I want it to be a thoughtful conversation." Although Lorraine was open to using a chatroom to see what effect it could have on learning, she was mindful of traditional classroom values and learning expectations. She explained to the class that she expected them to bring in points they had discovered during their Web research. She also cautioned them to write carefully and as "correctly" as possible, reminding the class again that their words would be "going public," no matter how limited their actual readership might be.

In my view, Lorraine's reminders to the students regarding the intent of the exercise and her expectations regarding performance basically conveyed what the exercise would be like and how it would conform to other classroom learning activities. This did not prove to be the case. Once the students started, the Web activity immediately took on a life of its own that was almost startling. As soon as we initiated the Quick Topic ™ exercise, it was very obvious that most members of the class right away began to engage in an intense and rapid-fire social exchange. Within the first few minutes in the "chat" area of the forum, there was almost a palpable sense of activity and energy in the room as students "pounded" messages to each other. To them, this was familiar turf, a social "venue" they were accustomed to using at home, and the character of their activity in this area was almost reflexive. So, within the first few minutes the class was totally absorbed in "talking" with one another, and using linguistic shortcuts and jargon common on the Internet. Some of the flavor of this electronic exchange follows.

"Look behind U"
"Waddup?"
"Turn around :0)"
"I M 2 seats down."

None of this should have been surprising to us. Even though the students knew they were in a classroom setting and involved in a learning exercise, the discussion forum

format (chatroom) precipitated in them an immediate and natural reaction, that is, the urge to chat with their classmates and friends. All of this happened before Lorraine and I realized what was going on. A class of well-behaved and respectful students who had always followed directions suddenly seemed to change their collective nature. They instantly switched from academic to social mode, from learners to "partyers." It is as if the computers seemed to signal, "time to be social, time to have some fun." When Lorraine and I took a look at a few of the posted messages, she quickly saw what was transpiring and stopped the students:

"Now kids, this is not what I had in mind."

She then reminded them of her expectations for the activity.

Understanding that they were "off task," and with Lorraine making her expectations clear, the students stopped their online interaction and things grew quiet as quickly as they had erupted before. The students got on task and began posting their views on the effectiveness of boot camps. The tone and energy level of the previous few minutes was replaced by a quieter mood of dutifully attending to completing the assignment. Formal literary practice and classroom etiquette kicked back in.

When I looked through the postings at the end of the session I discovered that we had mixed results in a sense. On the one hand—and not surprisingly—the assignments were completed by the students as directed, with technology's effect in evidence too; on the other, we had lost an opportunity to possibly observe a new mode of learning taking place on a more imaginative order. In respect to the former, there were many references in the postings to the Web Quest resources and many valid examples of engagement with text. In other words, one aspect of Corno and Mandinach's pre-reading activity was successfully engaged; the students did bring in what they had learned about boot camps through the Web Quest resource into their responses. There clearly was evidence of more critical thinking as a preparatory step to the actual reading process.

However, the results were also standard in a way. Students did refer to external sources for information, and did cite them as references for their views—which, of course, met our expectations. And there is no doubt that the students' thinking was

sharpened and more informed. But, at the same time, there were no references to other students' words—their classmates—no evidence of any social learning being triggered, no mutual or collaborative cognitive construction, in short, no obvious interpersonal learning. We had seen the dynamic at work before in their exchanges while on the Web Quest assignment (that is, shared learning); but on the discussion forum it was truncated before it could really materialize.

What had ended up taking place in class was simply another assignment being completed. In this instance, the students posted their thoughts online. That was the extent of technology's impact for this part of the pre-reading activity. By directing how the students could use the technology, we in stopped it from possibly being a new means of exchanging ideas, of starting and promoting conversations, of advancing socially based and constructed learning in the classroom. After the first burst of spontaneous activity, the students relinquished the sort of conversations that tend to energize and cross-pollinate information exchanges.

When I read what the students had written, I felt we might have missed a unique opportunity to see the other "half" of the pre-reading dynamic, that is, evidence of shared learning facilitated by technology. We might have missed a chance to observe an unusual form of interpersonal learning taking place, one similar in dynamics to the lively exchange of ideas and thoughts that exemplifies contemporary adolescent communication today. I say this fully realizing that even in the best of circumstances, the synchronous (real time) discussion format used on the Quick Topic™ site is not always ideal for classroom purposes. From my own experience with this type of Internet "talk," I have found it tends to be choppy and to come in helter-skelter. The flow of thoughts is frequently disjointed and hard to follow, and the nature of the exchange in general seems random, at times impenetrable. But this is the way adolescents communicate on the Web. The strengths of this mode of exchange is its spontaneity and creative use of language, and the lightening-like speed of social and intellectual engagement. I wondered what we might have discovered if we had found an appropriate way to stay the course with them once they started this exchange on the discussion forum.

The chance to explore "school" ideas with classmates using a familiar medium, and to have that exchange possibly read by others affords, I think, an exceptional interpersonal learning opportunity for students. In our case, the use of the Internet discussion forum could have lead to where we had hoped it would, that is, to an observable instance of text engagement and social learning once the initial greetings were exchanged. Perhaps if we had let the students get that part of it out of their systems, we might have then seen forms of text-related conversations begin to show up among the students, especially if Lorraine and I had thought to encourage them to "chat" about their Web research.

I could certainly understand Lorraine's concern over the students' apparent off-task behavior having spent many years as the teacher in charge with my own adolescent students. There is a sense of responsibility we feel about our students' writing projects, especially when the writing may be read by others. There is also a sense of responsibility that comes into play when students appear to be veering off the intended learning course. In this case, the social chat that was triggered by allowing the use of the discussion forum, the informal exchange that happened so quickly, seemed to detract from the point of the activity, namely, cognitive engagement with text.

For me, there was another useful lesson in what transpired with that particular assignment. In short, it is that every so often we must allow more of an unrestricted use and application of technology, within certain bounds and/or providing hands-on guidance. Otherwise, it will be extremely difficult to leverage the inherent capabilities and dimensions technology has to offer. In the case of the Quick Topic™, exercise, for example, we might have capitalized on the student proclivity for engaging in online conversations by turning the social energy into a learning asset. It would have been a way to see if there were any way cognitive engagement and socially based (interpersonal) learning could be enhanced as a result. One option we could have taken was to have the students apply their informal literacy practices to an online exploration relating to what they had learned about boot camps through the Web Quest. If Lorraine and I had directed the students to continue "talking" with each other, but to center the talk on their findings

and their views, I believe we might have been at least partly successful in converting the Internet chat into a productive form of cognitive text engagement and interpersonal learning. What I saw, in this case, seemed to be an instance of out-of-school literacy colliding with the more formal expectations of in-school literacy.

To avoid such collisions in the future, we need to find a way to accept technology on its own terms, yet turn it to our advantage. In regards to the Quick Topic™ exercise, for instance, we need to make use of a language and style of communication that is natural to students in the online environment. In effect, we need to embrace the chatroom ethos on its own terms. For example, an exchange of ideas among students can be generated online that would encourage both cognitive and interpersonal learning to take place. This exchange at first should be allowed to be unfettered, that is, students should be free to express themselves as they like as long as they address the topic and their language is not inappropriate. School standards for literacy would be relaxed for this phase of the interaction, and spontaneity would be encouraged. These initial conversations would be considered the equivalent of brainstorming sessions, brainstorming sessions with immediate input from classmates and through a medium that is comfortable and appealing to them. Presumably, such an exchange would produce a rich amount of ideas and views and shared information.

The next step would be for students to take the ideas they spawned during the exchange and move them into a more formal presentation format. The point here would be to both capitalize on the raw but rich exchange—to retain its spontaneity and cross-pollination—*and* to make it conform to acceptable classroom standards and learning expectations. If it can be done, if it can be done successfully, it is likely we will have both cognitive engagement with text and interpersonal learning, both abetted by technology. For the students, it would be a means of creating a shared understanding.

Distributed Expertise: "If You Find Anything Good, Tell Us"

One form of social learning that did emerge during the study was when the students worked together to "handle" the problem of "assimilating" a large body of Web data for their own use (that is, for creating a critical capacity to understand the issues in

the novel *Holes*). To do this, they distributed their expertise as a means of managing the effort.

At the beginning of the Web Quest session, the students were separated into working clusters at the seventeen (out of twenty-five) working computers in the lab. They quickly began to make plans as to how to divide the task of evaluating the Web resources. Without any prompting from Lorraine, they started working *collaboratively* to get as much accomplished as they could in the limited time allowed for the particular exercise. The operative feeling was that the information on the Web was enormous and that it resided at various locations. Kate, for example, suggested that the students using the computers to the right and left of hers "each take a different site, then we can tell each other what we found out. Take notes! If you find anything really good, tell the rest of us where you found it."

Other student clusters approached the task in a similar manner. The vast quantity of information on the Web and the need to digest and react to it quickly motivated the students to get involved in a form of shared inquiry, evaluation, and meaning-making (a little later in the process). Conversations included rapid summaries of source materials as students exchanged their opinions on what they had discovered. Very quickly a more coherent and usable body of information began to accrete through the process. Although in some cases there was disagreement, it was a healthy form of disagreement. It often resulted in students revisiting what they had read and looking it over from a different perspective. In some cases, this dynamic also resulted in reinforcing understanding for the entire group.

The concept of distributed expertise has application to what was taking place among the students during this activity. This concept states that the command of subject matter within a group is jointly constructed through social collaboration and deliberate inclusion of multiple interests, talents, and perspectives (Vygotsky, 1978; Brown, Collins & Duguid, 1989). This dynamic was more than in evidence as the students worked to piece together and synthesize what they were reading. In the few cases where students did not appear to be participating, pressure from their peers to get involved and to

contribute seemed to be enough to prod them to participate more productively. One notable exception to this involved Corey and the two girls at his computer station. To them, the peer pressure to "get moving" seemed to make no difference. When the period was drawing to a close and they needed "information," Corey was able through his high social status to get what he needed from classmates.

Peer pressure also came into play to an extent in terms of the popularity of some sites and the influence some students had on others when evaluating the Web materials. Sites featuring attractive graphics and/or photographs as well as sites with short text passages were considered, "cool." I heard this term used repeatedly during the class session. "Go to this site, it's cool." "Skip that site. It's not cool at all." Sites that were heavy with text were skipped over in many cases. In this respect, it was obvious that a particular kind of interpersonal learning was partly in operation, that is, a form of group accreditation of sites.

The choice of learning materials (which sites appeared to be better than others) was a product of both joint decision-making (at the very least, instances of individual input and agreement by the group) as well as peer influence (at best) and peer pressure (at worst). So, while on the one hand it was a positive event (the students employing a tactic to screen sites together and learn together), on the other it was also an example of peer influence in operation. In regards to the latter element, I saw no instances of students objecting to the norms set by the group when these norms were in conflict with what Lorraine and I advised. Specifically, the most popular site with the students was rife with exaggerations, and the legitimacy of the authors and content was noticeably suspect as to be open to question. But in spite of warnings from us regarding responsible Web "consumerism," many of the students referred to the "findings" on this site when they posted their thoughts on Quick Topic™. In this case, we see an example of interpersonal learning/social dynamics superseding cognitive learning (according to the research, not unusual when adolescents interact in the classroom environment).

Summary Comments

In closing, I will once again raise Asselin's question regarding the benefit of integrating technology into classroom learning activities. In respect to the interplay between cognitive engagement with text and interpersonal learning, can it have been accomplished equally well if technology had not been a factor?

In terms of the shared understanding and distributed expertise that took place during the Web Quest exercise, I believe the answer is on the side of technology's benefits. Resource materials available on the Web, even when they have been "screened and narrowed" by a teacher prior to the research experience, are vast and not easy to evaluate or control. In effect, the technology itself is part of the problem here. The fact that the students examined them together, shared their discoveries, synthesized their findings, and distributed their expertise was, however, both an instance of interpersonal learning and cognitive engagement, as well as an instance of a technology tool being used to enhance socially/collaboratively based learning. The minor instances of peer pressure that occurred were absorbed within the learning dynamic, with little pertinent effect.

In terms of our use of the Internet discussion forum, however, I believe the answer to the Asselin question is, unfortunately, yes—we could have done as well without the technology component, if not better. It is difficult for me to state that our use of the discussion forum advanced cognitive engagement and/or interpersonal learning. When I talked to Lorraine about this, she agreed. She found her students' comments to be "of surface quality" and saw no novel sharing of thoughts or ideas, a view similar to the findings in the Albright, Purohit & Walsh study (although the parameters allowed to govern the two studies ultimately took different directions). We agreed that the students probably would have done a better job learning from and with each other (that is, learning interpersonally) if we had simply conducted a face-to-face discussion following the Web Quest activity. A Socratic seminar, for instance, might have been more suitable.

On the other hand, and in support of what we attempted to accomplish, I believe we took a step in the right direction in terms of redefining adolescent literacy practices for the 21st century. There is a definite need to explore ways to connect student's rich out-of-school literacy practices with the more formally defined in-school practices.

Research repeatedly tells us that contemporary students are opting to use written literacy (such as through Instant Messaging) in place of spoken literacy as their means of communicating with their peers after school hours (Lee, 2002). All five of my participants bore out this point, telling me that they "talk online" at night much more often than they talk on the phone. In order to advance in-school literacy, to make it both more relevant and more meaningful to our students, we need to continue to experiment with ways to bring the kinds of literacy tools and practices that students use so naturally at home into the school environment.

Sanctioned Identity Explorations: Intrapersonal Learning

In this section I examine technology's effects on *intrapersonal* learning in the context of cognitive engagement with text. Again, going back to Vygotsky, this form of learning takes into account identity issues and identity development. In respect to my study, I was specifically looking for ways in which social learning was turned inward (both a conscious and unconscious process) by the student participants, and how it affected the adolescent dynamic known as identity negotiation or exploration. And, of course, my inquiry principally assessed all of this from the standpoint of whether technology is possibly an agent for such learning. This section is called *Identity Boosts* because one tentative conclusion is that the student's "self" (more precisely, the *ability to negotiate* the self's identity) is in fact given support through technology resources.

Research supports the likelihood that adolescents will, in fact, use modern technologies to explore their emerging identities when given the opportunity. Wallace (1999), for example, describes the Web as a "safe and anonymous identity laboratory" for adolescents' "personal experiments" with differing aspects of their developing identities. Turkel (1995) adds that "in the real-time communities of cyberspace," adolescents may be "dwellers on the threshold between the real and the virtual, inventing themselves as they go" (p.10). Bean's findings regarding adolescent use of the Web to "support [their] emerging identities" also support the role seen for technology in adolescent identity formation. All in all, there is ample evidence that creation of "virtual personae" in the "safe and anonymous" environment of the Web is not uncommon among adolescents.

Whatever form it may take, this type of identity exploration involves intrapersonal learning—learning that centers on attempting to understand and come to terms with changing aspects of the self. For years this type of social learning has also been emphasized in the reading class setting; teachers have encouraged students to make text connections, and to consider their own emerging identities in relation to the identities of the fictional characters they encounter in literature (Rosenblatt, 1995).

Lorraine's students participated in two technology-enhanced activities, Create-a-Character and Write-a-Dialog. These activities were designed with the hope of spurring observable intrapersonal learning, that is, indications of dynamics such as identity exploration and negotiation taking place. The second of the two activities was also intended for enhancing cognitive engagement with text.

I present and discuss the findings in the following three sections: 1) *Going to Cyber Heights Middle School*, which explains the unique educational intent of the Create-a-Character activity; 2) *Me and My Character*, focuses on creation of the cybercharacters and the effects the activity had on intrapersonal learning; and 3) *Cyberselves and Cognitive Engagement with Text*, which explores how intrapersonal learning contributed to text engagement for three of the student participants.

Going to Cyber Heights Middle School

Much of the adolescent identity exploration that takes place on the Web could be viewed as unsanctioned intrapersonal learning. It generally involves adolescents assuming "virtual" or different identities during chatroom discussions, when participating in Instant Message conversations and through email communication (Wallace, 1999). It is labeled "unsanctioned" learning because it takes place outside the school setting nine times out of ten, and, while it may have strong educational value in a personal sense, it is not school-sanctioned. The Create-a-Character activity offers adolescents a school-sanctioned means of exploring identity on the Web. While Create-a-Character does not *direct* students to explore their emerging identities through the creation of cybercharacters, research to date involving this type of Web activity proves that it is, in fact, what usually occurs (Spires & Cuper, 2002).

To fully appreciate how Create-a-Character was used by our student participants—and consequently, its effect—I offer a synopsis of the directions Lorraine and I gave the class before we got started. I believe it is important to note that, although we carefully avoided telling or intimating to the students to recreate aspects of themselves, this is what each of the students participants opted to do. To introduce this activity, Lorraine and I simply told the students they were being invited to join an online class with kids from around the world.

"Obviously," I told them, "we can't all learn together physically, so we're going to learn together virtually by creating characters to attend Cyber Heights Middle School together."

A few students looked skeptical and rolled their eyes. But when we mentioned that a class of fifteen-year-old students from Russia had also created characters for the site, there was suddenly an interest. Our group's perception, of course, was that if older students from another country had participated, the activity might be socially acceptable ("cool") after all. We explained to the students that they would be able to read each other's character descriptions, to see each other's drawings, and to read and create dialogs that involved their characters, published book characters, and characters created by other visitors to the site, including the Russian students. Finally, we told them that this could be considered a chance to be very creative, and for others from around the world to enjoy that creativity and to meet the "person" they invented. Students were told to create a "typical" adolescent and not to worry too much about the quality of their illustrations. Most of all, the point was to create "someone interesting and real" for a potential worldwide audience of adolescents to meet.

Me and My Character

In this section, the characters created by our student participants are introduced. Based on the self-authoring data presented in Chapter IV (i.e., the facts about themselves each student felt willing to share with me in concert with the data Lorraine supplied), I discuss ways in which the students used the Create-a-Character activity to enhance intrapersonal learning. Following each student-generated character illustration and

description (Tables 8-12), I focus on how the Create-a-Character activity may have been used to explore the complexities of adolescent identity formation in a virtual format. Another context for these activities was to assess how the characters were used to further cognitive engagement with the novel *Holes*, especially through the Write-a-Dialog activity that followed.

Kate/Melinda: "I'm Different". Table 8 offers both the character illustration and the character description Kate created.

Table 8. Kate/Melinda – "I'm Different"

	This is Melinda. Melinda is a student at Cyber Heights Middle School and was created by Kate from Anytown, USA. Melinda is 13 years old and in the class called The Panthers. Melinda is an eighth grader. She is the third child of five. Her siblings are Alexander, Sally, Molly, and Bobby. She stays in the orphanage not far from the school and has for the past three years. At school, Melinda is the joke of the day. She is really skinny (too skinny) and can't control her behavior. In the middle of class, she has outbursts that cause the others to make fun of her. Also, she has a speech problem that makes people unable to understand her, thus having kids mock her. Outside of school, she tends to spend her time with her three friends Sally, Joe, and Alex. That is when she's not at gymnastics practice or listening to her music. The three types of music Melinda likes are classical, oldies, and bluegrass, and her favorite band is the Monkees.

When I first met with Kate, who is a newcomer at Meadow Brook Middle School, she was quick to tell me how she "feels like an outsider" and in many ways "not quite normal." Her self-authored identity, based on feelings of alienation from her peers, is "I'm Different." Much of what Kate shared with me in terms of her struggle to establish an identity with her new classmates was illustrated, in a once-removed fashion, through her character Melinda.

- Kate's two older sisters are living away from home (at college) and Kate told me how "strange it feels at home" without them. This sense of isolation came through as Kate placed Melinda in an orphanage, in spite of the fact that she gave Melinda three siblings.
- Kate grew up in the North and is now living in the South. Kate gives her character Melinda a speech problem that makes it difficult for people to understand her. This could reflect both the cultural and linguistic differences between Kate's new and

former homes. It also speaks to Kate's sense of being an outsider with little or no real communication with her new classmates.

- Kate told me that she sometimes feels "like the joke of the day" at Meadow Brook and she uses the exact same description for Melinda, a skinny kid with "behavior she sometimes can't control." Kate's feelings of being out of control in her new environment are voiced through her virtual counterpart.
- Just as Kate takes comfort in and makes friends through out-of-school activities (she plays on a traveling hockey team and is a member of her church's youth group), Melinda has three friends "outside of school" and it is outside of school too where she enjoys feelings of happiness and success through both gymnastics and music.

I asked Kate, in our exit interview, to talk to me about her experience with creating Melinda. Kate told me she "loved it," and that it was "so much fun even though I made Melinda a dork." I asked Kate about that aspect of Melinda as we compared her (the character) to the characters created by her classmates. We both noticed that almost everyone else had created characters with few flaws.

"I wanted to make her more real than that, I mean, come on. Some of those other characters aren't very real, if you know what I mean. I made Melinda real . . . and like me in some ways, I guess. Actually, in *lots* of ways except for the way she looks. She's goofy looking. Look at her. But I kind of like her too. I'm glad she's out on the Web so other people can see who she is."

It appears Kate used her character to objectify those aspects of her newly forming identity (as a Meadow Brook 8th grader) that are most difficult for her. She talked about the character-creation experience as a form of truth telling, and said that it was good, that she "loved it." The fact that she was presenting this side of herself to the "idealized" Web audience (Walther, 1996) gave her an opportunity not only to discuss her identity within its local confines, but also reminded her that she was forming an identity within a much larger community as well. Kate's use of Create-a-Character illustrates how the pressure for local peer acceptance can be alleviated somewhat when a Web audience is introduced into the middle grade setting. The process seemed not only to open a new channel for dealing with identity issues, but also one with less anxiety as part of its dynamic.

Ethan/Scott: "One of the Guys". Table 9 offers both the character illustration and the character description Ethan created.

Table 9. Ethan/Scott – "One of the Guys"

	This is Scott. Scott is a student at Cyber Heights Middle School and was created by Ethan from Anytown, USA. Scott is 13 years old and in the class called The Panthers. Scott is in the eighth grade. He is the oldest child and has a little sister named Sarah. He is a funny guy and is somewhat of a class clown. He is usually happy and always jokes around. His best friend used to be a kid name Dana, but now they cannot stand each other. His new best friend is George. He loves cars and basketball and one day hopes to be rich enough to get anything he wants. Scott is awesome at sports and loves basketball.

Ethan, who self-authored as "One of the Guys," is careful to always abide by the rules for acceptable (or tolerable) behavior set by his peers. While Ethan is outwardly easygoing and confident, he is (as seen in our interviews) also rather insecure and cautious, always gauging what he needs to do to stay in the ranks of the "in crowd." It is difficult to get Ethan talking about anything in any depth. Most things are "cool," "good," or "okay." Ethan's character, Scott, is relatively underdeveloped in comparison to the other characters created by the student participants; he is a "happy" boy with few distinguishing characteristics. There are some notable similarities between Ethan and his character Scott, and some exaggerations as well.

- Ethan has a younger sister and he gave Scott the same sibling situation.
- Both Ethan and Scott enjoy sports, although Scott is "awesome" at them while Ethan told me he is a "pretty good" athlete.
- Ethan recently had a fight with another student in Lorraine's class; he records a similar fight Scott had with his friend Dana. It is interesting to note that "Dana" is not one of the most popular boys in Lorraine's class. Ethan mentions that Scott now hangs out with "George" instead.

When I talked with Ethan about the experience of creating his character, he said it was "fun" (a favorite word of Ethan's). Ethan kept his character very simple and made sure he was into all of the acceptable activities, apparently reflecting Ethan's own need to play it safe and stay mindful of what it takes to be popular at Meadow Brook. Ethan admitted, "I guess I made Scott kind of like me in a lot of ways. I wasn't thinking about

doing that but it happened anyway. He was supposed to be real kid and I'm a really real kid, so I made him a lot like me."

Scott's fight with Dana, Ethan's classmate, and his subsequent friendship with Corey's character, named George, marked Ethan's only in-depth use of the character creation to explore aspects of his own identity. In reality, Ethan is not part of Corey's inner circle of friends, but through his virtual counterpart (Scott), Ethan broke out of a friendship with Dana (through the fight) and moved "up" to the highest social rung in his class. Ethan did not talk to me about the virtual social move he made, but he was willing to articulate this move to a wider, supportive Web audience.

Naomi/Darlene: "You Gotta Be Real". Table 10 offers both the character illustration and the character description Naomi created.

Table 10. Naomi/Darlene – "You Gotta Be Real"

	This is Darlene. Darlene is a student at Cyber Heights Middle School and was created by Naomi from Anytown, USA. Darlene is 14 years old and in the class called The Panthers. Darlene and her 17 year old brother Michael attend CHMS. The two siblings are 1/2 Puerto Rican, 1/4 African American and 1/4 Caucasian. Since Darlene is the younger of the two, she is spoiled rotten and gets whatever she wants. Michael is captain of the football team and is everyone's dream guy. Darlene is captain of the cheerleading squad and is the most popular girl at school. Darlene and her brother have twin pug puppies, Prince and Princess. At school, Darlene is brilliant. She hardly ever gets in trouble and manages a 3.7 grade point average. Last year Darlene ran for class president and won! In her free time, Darlene likes to go to the mall with her best friends, Alexis and Brooklyn. The three are inseparable. They have known each other since they were in diapers and their friendship will never cease, only grow.

Naomi is a soft-spoken and candid student who self-authored as "You Gotta Be Real." Through her character Darlene, Naomi explores aspects of the adolescent experience that she feigns to be unimpressed with—the desire to be popular, to be elected class president, to be captain of the cheerleaders, and so on. In general, she pretends not to need recognition from her peers. At first glance, her character Darlene appears to be *unlike* Naomi.

- Darlene is multi-racial while Naomi is African-American.
- Darlene has a "dream guy" of a brother, captain of the football team, while Naomi has a sister who is away at college and who Naomi describes as "a real pain sometimes."
- Darlene is spoiled and gets whatever she wants while Naomi tells me she has to "work very hard at home and always do my share."
- Darlene is the most popular girl in her school–class president, captain of the cheerleading squad, and brilliant too! Naomi has friends but is not part of the most popular group of students in Lorraine's class. She is smart, but she works hard for her grades. She is not a cheerleader but is keenly aware of their status. She told me in our interview "the cheerleaders are definitely the most popular girls but I don't care about any of that."

When Naomi and I talked about her character and how she felt about the experience of creating a virtual person, she said it was "interesting" and that she enjoyed creating "someone like Darlene." When we discussed the business of people creating characters who are like themselves, Naomi told me that she "saw a lot of that" and that she "did it a little bit too." I asked her to talk to me about the ways in which she and Darlene were similar.

"Well, she's not White like most everybody else in her class and that's me too. And she's smart like me and she has only a few *real* friends, even though she is really popular. In some ways, she's like me and in other ways she's like who I'd like to be . . . well, like I'd like to be *sometimes* . . .to get to be in charge of everybody else . . . but Darlene is kind of a phony too."

Based on our conversation and my observations of Naomi, she seemed to use Darlene to "try on" what it would feel like to be super popular on a temporary basis—"sometimes." Although outwardly Naomi seems to resist the attraction of being super popular, and the pull from the higher levels of social authority—often speaking instead of the need to have "real friends" and for people to "be who they really are"—she would also like to experience a sense of power among her peers . . . but "just for a little while." It can be said that Naomi used this Web experience to explore her identity within her peer group, both as a "real" friend as well as someone who would like to have higher social status. At the same time, Naomi labels those who have such status or authority as

artificial or "phony." Here she may be indicating that to her such popularity is only temporary and, as a result, relatively insubstantial.

Corey/George: "I'm Tough". Table 11 offers both the character illustration and the character description Corey created.

Table 11. Corey/George – "I'm Tough"

	This is George. George is a student at Cyber Heights Middle School and was created by Corey from Anytown, USA. George is 17 years old and in the class called The Panthers. George Camble, or Big G as he is known on the street . . his father left his family before George was born so George is the man of his family. He has two younger half brothers, Jermain and Dominique. They are eight year old twins and their father did the same thing as George`s. He is an eighth grader and works two jobs bagging groceries after school and working at the gas station on the weekend. He has been asked to play football on the high school varsity team but rejected so he could stay home and take care of his family and keep his brothers out of gangs and trouble.

Lorraine told me that Corey is the student with the highest social status in the class. He is the "king" of the class who others try to emulate and please. This evaluation of Corey's status was reinforced by my own observations and by what my other student participants told me. During our initial interview, and based on the background data Lorraine shared with me, Corey self-authored as "I'm Tough." He is the product of a broken home, and of a family he describes as "split up" ever since his mother left with his older brother, a sibling who Corey says he "doesn't know." In the "I'm Tough" tradition, Corey created the character George, or Big G, a brawny, bearded seventeen-year-old African-American athlete who Corey tells me, "knows his way around." There are interesting parallels between Corey and George; there are also some telling differences.

- Corey is bi-racial while he tells me that George is African-American. Corey's father, who is raising Corey, is African-American. Corey's mother, who took his older brother and left Corey and his father, is White. Corey has lifted the White blood from his character.
- Both Corey and George come from single-parent homes where one of the parents "left," and both are "tough." They are survivors who can make it without the backing of two parents.

- Both Corey and George are excellent athletes. Again, they are "tough" and much of their social status rides on their athletic ability. George is good enough to be scouted by pro football teams. Corey is the captain of his local football team and respected by his peers for his strength and agility on the field.
- There is one significant difference between Corey and George. Unlike Corey, George has siblings. He has two younger brothers he watches out for and makes personal sacrifices for.

Following my initial interview with Corey, I did not expect him to be particularly communicative about creating George. This proved to be the case. Corey did, however, admit that it was "pretty okay" creating George, adding—when asked about any personal similarities—"he's like me a lot. He's tough." I commented that he also seemed like a good guy, a responsible guy, especially when it came to his feelings for his brothers. "He is," Corey agreed. "You gotta' be." I tried to get Corey to talk to me a little more about his views on older brothers and responsibility, but he closed down at that point.

For a relatively incommunicative adolescent like Corey, particularly one who is even more incommunicative around adults, I considered what this form of intrapersonal learning activity might have offered him. He opted to create a character who displayed many of the traits he projects with pride (for example, toughness), but also gave his cyber character—or as Wallace (1999) puts it, his virtual counterpart—a strong sense of home and family. George the character was devoted to his younger brothers, looking out for them, and displaying a sense of responsibility to them. Corey does not enjoy this type of family connection with his own older sibling, who is "gone." I wondered if Corey might not have been making a statement about his older brother (gone from his life) when, through his cybercharacter George, he makes it evident that older siblings *should* watch out for younger family members, no matter what the cost. The most I could get Corey to say about the topic of being responsible for brothers is, "you gotta be." But through the character he created, he appeared to be saying a good deal more.

Beth/Eirene: "Be Careful, Be Happy". Table 12 offers both the character illustration and the character description Beth created.

Table 12. Beth/Eirene – "Be Careful, Be Happy"

	This is Eirene.. Eirene is called Erin by her acquaintances and Yuki by her family members and close friends. Erin lived in Japan and learned the language, moved to the Philippines when she was 6 (where she learned Tagalog), then moved to America with her family when she was 10. Despite her father's belief in Shinto-ism, she is a Catholic as are her mother and brothers. Her mother is Japanese and her father is Filipino-American. To keep her two languages well-practiced, her parents speak to her in Tagalog and Nihingo. Even though they live in America, they still sit around a Japanese table and eat Japanese and Filipino dishes. Erin is the youngest in the family, but she is definitely not spoiled because her parents are very strict. Erin has older twin brothers, Aaron and Devon. Erin has a love/hate relationship with them as they are protective of their little baka (idiot in Japanese) and tend to chase both bullies AND suitors away. Erin is hard to make very angry, but she is also hard to apologize to. She takes teasing fine the first couple of times, but when it gets out of hand, or too hurtful, she gets very mad and says careless things. She belongs in several clubs in her school like the Beta Club, the Yearbook Club, and the TIP participants (a club created by a local university for gifted teens). Erin is not all that outgoing but she is outgoing enough to make many friends and achieve the goals she sets for herself. Of her many friends, she has two best friends Laney and Candace. When with her friends, she is practically a different person. She becomes giggly and crazy. In fact, her friends are so retarded, they made up a group called the Three Retards. Her friends are almost always at her house because they claim that it's the best place to hang out, but Erin knows it's because they have crushes on her brothers.

Beth, who self-authored as "Be Careful; Be Happy," told me she knows exactly what it takes to "get by" in school socially. She says it is a daily struggle, but that "if you're careful, you'll be okay. You can have fun in school." Beth is insightful in terms of the challenges involved in being an adolescent, but she also wants to "let go and have fun" with her friends. She works hard in school, enjoys her classes, especially language arts and creative writing. It is not surprising, knowing this of Beth, to see what a richly described cybercharacter she created, a character who reflects her in many ways.

- Beth's Filipino home culture, like Erin's combination of home cultures, is preserved and honored although it distinguishes her and separates her from her peers in some ways. Beth explains that some of her classmates wouldn't "understand the language we speak at home, or the food we like to eat either." Beth has created a character who is also challenged to bridge disparate home and school cultures, but who handles it well and maintains a happy and full social life.
- Beth has no sibling, but she has given Erin two older brothers who both watch out for her and tease her.
- Both Erin and Beth are involved in many after school clubs and activities, do well in school, and have a wide range of out-of-school friends.

Beth spoke to me readily and enthusiastically about how much she loved creating Erin. "I love to write and this was so much fun for me, to make a character who could live on the Internet and who other kids from around the world could read about. I mean, look at all the characters different kids made and think of them sitting at their little desks, making up people for other kids to read about."

I next asked Beth if she thought kids had a tendency to make their characters somehow like themselves.

"Oh, for sure they do. I know I did, for sure. That's what was so fun about it. I made her like me, but I also gave her some things, like brothers, that I don't have but that I *wish* I had. It's a great way to try out being somebody who is like you but is also maybe a little bit better . . . or maybe a little bit worse sometimes too."

Fortunately, and in stark contrast to my interview with Corey, getting Beth to talk about the character-creation experience and its personal implications was effortless. She conducted her own analysis in terms of the value of the experience. Unlike the others, she was not only quite aware of the self-exploration she was working through in the Web environment, but also appreciative of its significance and willing to discuss it.

Cyberselves and Cognitive Engagement with Text

After developing their cybercharacters, the students were then invited to "Write-a-Dialog"—that is, to develop an imaginary conversation between their characters and other characters from the virtual Cyber Heights Middle School. The intent of Write-a-Dialog is to link the intrapersonal social learning that is typically initiated during cybercharacter development to cognitive text engagement. In this case, it is specifically

to the "connecting" stage of cognitive engagement. The dialogs students create, which are shared with a potentially global audience on completion, are based on prompts dealing with the social issues in the novel they are reading.

In the case of *Holes,* there are two such prompts for students to chose from. The first (called *Sense of Belonging*) deals with issues of peer pressure and with adolescent tendencies to demean and isolate each other. The second (called *Friendship*) deals with peer pressure and ethical behavior (including, in this case, students being asked to consider their sense of responsibility for their friends' actions). Both issues are not unlike those Stanley faces at Camp Green Lake. As Write-a-Dialog was an option rather than a requirement, Lorraine and I were pleased when three of our five student participants chose to participate.

Kate and Naomi wrote dialogs in response to the first prompt, *Sense of Belonging*. Following the complete text of the prompt, I offer a synopsis and analysis of the dialogs they created. My focus is twofold: first, I look at the effects the activity had on each of the students in terms of the intrapersonal learning that was engaged as they created their cybercharacters; and second, I look at the dynamic of cognitive engagement with *Holes* during the writing of dialogs. The following is the full text of the first prompt.

> **Scenario 1: Sense of Belonging.** The characters you have chosen are friends. They are sitting in the school cafeteria together and notice that Ashley, a member of the super popular crowd in their class, is sitting alone. She appears to be crying following a fight she had with her friends. Write a dialog that your characters have with each other regarding whether or not they should invite Ashley to eat lunch with them. Do they think Ashley will respond to their invitation? Will she continue to be their friend if she patches up her problem with her other friends? How do your characters feel about cliques and the need to feel a sense of belonging? Try to have their feelings come through in your dialog.

What follows is a synopsis and my analysis of the dialog Kate wrote in response to this prompt. She titled her work "Problem with Populars."

Problem with Populars. Kate took a long time studying the characters created by other visitors to the *Literacy Junction* web site before choosing two to include in her dialog. (Interestingly, Kate was the only student participant who opted to use characters *not* created by her Meadow Brook classmates.) She was also required to use her character

Melinda and Stanley (from *Holes*). In general, she wanted characters that would be considered social "outsiders," that did not typify what was considered popular by adolescent standards. When we talked about her character choices, Kate said, "I picked what's more realistic. It's supposed to be a group of outsiders in the cafeteria and that's who'd be in it. And Stanley fits in because he was an outsider in the story too."

The dialog Kate creates for this group of characters includes quite realistic elements, as for example the mixed sentiments evident in the "talk" regarding whether or not to extend friendship and support to Ashley, a girl who has never shown any interest in the others before. Kate's own character Melinda insistently questions the other characters regarding what it means to be popular and what it means to be loyal too. Finally, Melinda encourages the others to let Ashley join them, even if they feel they are "being temporarily used" as one of the characters puts it.

"No one deserves to be alone," Melinda states. "I know. I've been there."

Through her dialog, Kate explores a number of social/personal issues she deals with in her own life, particularly her sense of being an outsider at a new school. In spite of her own feelings, however, her character opts to take a compassionate stand on another character (Ashley) who at the moment is an outsider. Stanley takes a similar stand in the novel *Holes* when he stands up for Zero, a fellow camper who has low social status.

When Kate and I talked about her dialog, she said she tried to think how Stanley and Melinda would "really act" before writing it. She said she did not want it to be "all nice and fake," but that she really believed they (the characters) would have given Ashley a chance–"not to get popular with her or anything, but because they knows what it feels like to be left out."

By choosing to follow Stanley's lead, Kate's virtual counterpart rose above what is a frustrating social reality for adolescents who do not enjoy high levels of peer acceptance. Through the Web-based activities (that is, Create-a-Character and Write-a-Dialog), it seems Kate managed to extend an intrapersonal learning experience into a real personal connection with the text. She took the opportunity to make a public statement

(via the dialog) on a topic very close to her, a topic directly related to her emerging identity.

The other student participant to write a dialog in response to the prompt *Sense of Belonging* was Naomi. Following is a synopsis and my analysis of Naomi's dialog which she titled "Lunchroom Blues."

Lunchroom Blues. Unlike Kate's choice of characters—a cast of self-described "outsiders"—Naomi opted to feature a group of highly popular students in her dialog. Along with her own character Darlene, Naomi's dialog featured two male characters, one being George—Corey's character—and a female character who, like Darlene, was described as "very popular with her classmates." Naomi explained to me that the story line in her dialog dealt with whether or not to forgive Ashley for "breaking the rules of the populars."

When Ashley begs for forgiveness in the dialog, Naomi's character takes her time before relenting. "What can I say?" Darlene tells Ashley. "The truth hurts." With very little smpathy, Darlene states it is "the price you pay" when you break the social rules. In the end, however, Darlene allows Ashley back into her circle of friends, but not before she has been made to "learn a lesson"—to suffer a little.

In reviewing with me what she had written, Naomi told me it was important "if you're going to put something up on the Web, to tell the truth." For her the truth of being in middle school is that "you've got to follow the rules." She felt that Stanley was kind-hearted in *Holes,* but "not all that realistic," that "if it were real, he probably wouldn't have stood up for Zero." But having said that, Naomi ultimately wrote a dialog in which forgiveness was extended to another character. In short, working in the context of the social issue in *Holes,* Naomi voiced her true feelings through her character Darlene. She used the Web experience to vent her views on the "way it is" for teenagers; at the same time, she expressed how it "ought to work out" in the long run, that forgiveness is the best policy.

After sharing Kate and Naomi's experience with the Write-a-Dialog activity, both of whom spoke readily about it, I sat down for an interview session with Corey. Corey

was the third student participant who opted to take part in the Write-a-Dialog activity. He wrote in response to the second scenario, *Friendship,* which dealt with the issue of maintaining one's social status among peers, and the issue of fulfilling the social responsibility adolescents have for each other.

> **Scenario 2: Friendship.** The characters you have chosen are at the mall together. A member of their group, Josh, just tried on a Polo t-shirt then left it on under the shirt he wore into the store. He tells your characters what he has done and that he plans to walk out of the store without paying for the shirt. Write the dialog that your characters have with their friend Josh. Think about what it means to be a real friend to another person as you write the dialog, and whether or not you have a responsibility to help your friends stay out of trouble.

Following is a synopsis and my analysis of Corey's dialog which he titled "It's Just Not Cool."

It's Just Not Cool. After some deliberation, Corey chose characters created by two of his best friends to interact with George (his character) and Stanley (from *Holes*). Corey basically kept Stanley, who was younger than the other characters in his dialog, on the sidelines—as someone who asked questions but did not have much in the way of worthwhile opinions. The "star" of Corey's dialog was definitely George, who came through as a street-wise but socially responsible friend to Josh, advising him, for example, that "it's just not cool to steal." George reinforces this point by adding that stealing would set a bad example for George's little brothers, who look up to Josh in much the same way they look up to George.

While Corey was not willing to talk about his dialog, other than to say he thought his was "good . . . real," it was apparent he used it to extend personal themes that he introduced when creating his cybercharacter George. Again, George's sense of responsibility to his younger brothers comes through as a crucially important character trait, as one that exemplifies model sibling behavior. Corey himself has lived with a void in that regard in his own life, yet he registers (through his character and the dialog) how important it is for boys to have older brothers around as they grow up.

At the end of the dialog, Corey adopts a lighter tone with his characters. Once George's "work" is finished, and he has successfully talked his friend out of stealing a

shirt, he turns his attention to a group of girls. “Dang!!!!! Let’s go holla at those girls over there,” George tells his friends. “They are fine.” So—after first projecting and showing in action the traits Corey plainly admires in an older brother, he lets his readers know that his cybercharacter is still tough and is still “the man.”

Although ordinarily Corey would not have voiced his thoughts on families and responsibility by “opening up,” he certainly did so through this Web writing experience. The form seemed to offer a safe and anonymous way to do it. Nothing was lost regarding his reputation as a tough guy. At the same time, if anyone were to question him about what he had written or suggested that it showed any kind of weakness or neediness, he could easily deny any personal links to the character he created. As can be seen, the potential for intrapersonal growth for a student like Corey who is reluctant to share his feelings with anyone, but particularly with adults, is significant. Through creating a character and giving the character a “voice,” Corey was then able to use the social issues in *Holes* as a foil to deal with certain issues in his own life. Taken together, I believe these activities intensified for Corey his engagement with the text. The process was largely an intrapersonal learning dynamic that helped liberate him enough to express his feelings about an issue clearly central to his view of the world.

Summary Comments

As I examined the characters created by the student participants, I could see familiar patterns in how they used this activity in a way that helped to stimulate intrapersonal learning. To varying degrees and depending on the sophistication of their communication skills, the characters they created were consistently used to reconcile a conflict between their own identities and what they might like those identities to be (or to include):

- Who I am expected to be at home vs. who I am expected to be at school
- Who I would like to be with my peers vs. who I am with my peers
- How I would like my life to be vs. how my life really is

During adolescence, life roles and expectations are complex and in transition. Social expectations at school can be overwhelming and do not always match expectations

at home. Affording adolescents an opportunity, a school-based and therefore sanctioned opportunity, to stand back from those expectations—encouraging them to objectify aspects of themselves in a safe and anonymous format—has been seen to be an effective intrapersonal learning experience in current research (Spires & Cuper, 2002), and continued to be the case in this study. Each participant, when asked, spoke of creating his or her cybercharacter as a positive experience and, in some cases, spoke of it being "important to do" as well. Simply put, it appeared they appreciated the deeper value of the exercise. Those who chose to write follow-up dialogs through the voices of their characters further enhanced the experience for themselves by using their "virtual counterparts" (Wallace, 1999) to open some form of personal discourse relating to text-based social issues and to their world.

In closing, Asselin's (1995) question comes up once again. Could these forms of intrapersonal learning and text engagement have been accomplished with equal impact without the use of Web resources? I believe the answer is no. Certainly the students could have used traditional means to create characters to share with one another, and they could have used those characters to write dialogs related to issues from the novel *Holes.* But without the Web, chances are good that their audience would have been "only" each other, an audience so local and so entwined with each student's sense of identity that to be able to step back from it is precisely what each student most needs. By creating a virtual counterpart of themselves, which is what students readily do in the Web environment (Turkel, 1995; Wallace, 1999), and sharing that virtual counterpart on the Web, students are able to experiment with aspects of their emerging identities in the setting where there is no social pressure whatsoever, where they can feel part of a vast and supportive learning community.

CHAPTER VI: DISCUSSION

The Questions Revisited

In this final chapter, I summarize the more salient findings of my study and discuss its pedagogical and research implications. Since my research questions as articulated at the outset of this study were the axes for my inquiry, my closing discussion is organized along those lines. How *did* the addition of technology-enhanced activities affect literature learning for my student participants? What were the effects on their cognitive engagement with text? What were the effects on their social learning? Summary thoughts on my findings and implications for pedagogy are woven into the narrative that follows; suggestions for future inquiry are presented at the close of the chapter.

Technology and Cognitive Engagement with Text - Discussion and Pedagogical Implications

I owe a great debt to Corno and Mandinach, whose framework for understanding and realizing students' cognitive engagement with text I applied in my study. The reading engagement framework they developed (including phases of planning, connecting, and selecting) was extremely useful in organizing the direction of this part of my study and in providing a methodology for evaluation. In short, their framework provided a way of both probing and assessing technology's effect on reading and engagement.

Getting It

The technology resources used in response to my first line of inquiry (Web Quest, Quick Topic™ discussion forum, and Solve-a-Problem) seemed to make a difference in the level of cognitive engagement during the participant exercises. I say "seemed" because the intent of limited-number, short-term case study research such as mine is not to interpret conclusively. However, there *was* evidence to indicate engagement, and I believe the evidence is worthy of the attention of the larger educational community.

From my standpoint, one of the most telling indications of text engagement was when the participant Naomi said (in regards to the novel *Holes*), "Well, actually I read the book a few years ago. But I didn't get it then." Certainly Naomi was, according to Piaget's developmental stage theory, more ready to think abstractly as an 8th grader than

she had been when she first read *Holes*. But I think the use of technology-based resources contributed too. I think her added maturity in concert with the use of technology was the reason she *got it* more fully and with more appreciation the second time around.

There was other evidence of engagement too, again much of it of the kind that is derived from observation (that is, observable phenomena) and from elementary analysis of the observations, as well as of the student "products." Take, for example, the reaction to what the students had learned about boot camps during a preparatory step (planning) to reading the novel, *Holes*. Statements from them that called into question the "fairness" of treatment at the camps, comments such as having "second thoughts on how effective they are," and finally, consciousness that "children have been treated horribly and even murdered," certainly seem to reveal an engagement at the appropriate cognitive level, as well as the hallmark of such engagement, critical consideration of what is being read. It would not be unreasonable to conclude that the Web resources used during this reading activity —the ones sanctioned by Lorraine and at least one resource that students happened upon "unexpectedly"—ratcheted up levels of student interest and the kind of enthusiasm that accompanies true engagement with learning.

Technology—A Brief Digression

Based on my study—my interviews, my observations, the students' products—as well as on my own experience and understanding of technology over the last 15 years, I firmly believe technology will ineluctably change both the way we educate and the way students learn. I just do not know when this will happen. However, in general and in particular cases, there is more and more evidence to be seen. For instance, just in the context of my study, I think our use of the technology resources (everything from Web Quests to the interactive *Literacy Junction* activities) helped our students "get it," that is, helped them become critically engaged with text and genuinely engaged with issues. This happened on both a cognitive level, as well as on an emotional level—the brief Web Quest episode in particular did seem to stir social agency reflexes, even in a student like Corey whose generally blasé attitude toward learning activities and toward students not in his social "gang" was noticeably reversed. Whether the perception of a Web audience

was the cause of this reversal is impossible to state definitively, but it was in the technology-enhanced learning environment that we saw Corey getting truly involved.

The Web (the ubiquitous *www*) is a universe onto itself. At everyone's fingertips is an enormous amount of information, in many kinds of formats, information that has both "been around" (traditional scholastic information, for instance) as well as up-to-the-minute current information and the information hybrids that fall in between. It is available easily, quickly, and usually for free. It is rich, it is multi-layered, and it is linked to related data in almost an endless topical chain. You can "drill down" to get to what you need or just to see where it will take you. This is not to say that students always *will* drill down, but the opportunity is there for them if they choose to take it. Certainly, the information is at times suspect, legitimacy or accreditation an issue (or worry, depending on your point of view), and its quality inconsistent, sometimes undependable. Nonetheless, it is at the same time "complete" (or has the potential for completeness), it is more vivid, graphic, immediate, "sensory," and as a result (often) more enticing, exploratory in nature, and impressive to the adolescent mind.

In the pre-reading exercise in the study, for example—which in the Corno and Mandinach schema sets a purpose for reading—the use of the Web Quest resource elicited comments such as "Hey, look at the second site…" or "Where'd you read that?" Granted, this is not much to go on to make any sweeping claims. Granted, too, reactions like that can happen with books and periodicals. But, I am not convinced we are talking about the same thing. I am convinced that this kind of reaction is more unique to the Web environment. I think the way adolescents can access and collect information so quickly and so easily, in one place, in such different forms, with all of the media bells and whistles they are accustomed to seeing and experiencing, makes this sort of cognitive experience peculiar to technology. Web/Internet/media technologies uniquely engage the mind—the young mind—through sheer volume, mass, variety, eye-and-ear sensations, with such speed, instantaneity, with such a sense of exploration, that in total they engage learning and interest and passions (and in some cases compassion) in a way that is without precedent.

Multiple Perspectives—A Perspective

"Multiple perspectives" is a current educational expression for diverse sources and views, as well as cross-cultural sources and views. We want to hear everyone's voice on an issue; we want to be sure to include them. Something like this is, of course, indisputably a worthwhile educational/learning goal. Again, too, a goal like this can be achieved through traditional means and resources—books, reference books, and periodicals in school libraries, for example. Yet, it is possible to obtain "multiple perspectives" over the Web/Internet much more quickly, with much more compelling results. Adolescents become engaged with Web-derived "perspectives" in a way not really possible, I believe, through traditional means and resources. Once again, it is due to the amount of information, its variety, its formats, and its speed of access. All this makes it intrinsically engaging. The wide range of this information is exciting—students have access to everything from accredited information/sites (for example, in the study they were police, academic, and other institutional sites) to "renegade" sites, little known sites, little-heard voices and viewpoints. The Web offers *all* perspectives, the mainstream and the non-mainstream side by side (which is part of the excitement). And through the Web, everything is easier to access, more immediate in nature, and more capable of being shared right at the moment of access. For everyone involved, it is more stimulating that way. It is a collective reaction, a collective engagement. Students are learning together to filter the data, to use what they want, to figure out what is true and what is not. There is great potential for collaborative critical thinking to occur.

And at the end of such a learning experience, I believe students cannot help but be more informed and more engaged in the learning task. As Kate said about the fictional character in *Holes* following the Web Quest research she experienced with her peers, "I want to read more about this. I'll be more interested in finding out how Stanley handles it at camp." To me, this is what engagement sounds like. It involves a reason to want to read on, to want to find out if the "multiple perspectives" on a topic bear out in fact, or in fiction as the case may be.

Writing as Talking—Contemporary Literacy Acts

When adolescents "talk" online, their language is partly electronic code (or, more accurately, a code-type language shaped by electronic media) and partly traditional adolescent slang. It is partly plain old English, too. Lorraine and I saw this form of writing—this aspect of literacy—in our study. In some ways, this form of writing/literacy was difficult to accept. I had read about it in my research, in studies such as the one conducted by Albright, Purohit and Walsh (2002), was familiar with it, and was therefore prepared to see it in the classroom. In the research field today, it is seriously studied as a form of adolescent literacy. (It should be noted that Lorraine was also familiar with this type of writing; her objection to it had to do with its place in the classroom where she is working hard to improve writing skills.) There are many aspects to it that researchers find interesting—most seem to feel that it is where the action is, or it is, at least, the next place for literacy inquiry (Leu, 2000; Kist, 2000; Bean, 1999; Elkins & Luke, 1999). What captures our attention is the speed with which students think and write, with which they communicate both in code and in clear English, and do so with multiple partners, on multiple topics, and with multiple levels of engagement. When put in front of a computer, adolescent literacy practices (in many cases) shift into high gear.

This is true at home, and in the classroom too if, for example, students are allowed to use something such as a chatroom to communicate with each other. A social eruption takes place in the learning environment (as it did with our participants). Whether it is good or bad, useful or not, depends on your viewpoint, your experience, and how ready your own practice is for the IM/chatroom age. In general, when the chatroom forum is opened up for classroom use, such as for reading/writing assignments, students seem to take off. They seem to exert much greater energy into developing and exchanging content (for the moment, we need to suspend our traditional views of quality for that content), to show more interest in topics or issues, to show expectation of quick readership and reaction from others, and so on. Syntax, spelling, whole sentences, are not a concern. As one of the student participants said (in a slightly different context) when asked about the Quick Topic ™ writing assignment: "It doesn't feel like writing though … it's just talking. It's different."

Yes, it can be different, unless the teacher spells out exactly the way the assignment is to be completed in the chatroom environment. As was seen in Chapter V, our own results were mixed and in some ways akin to the results of Albright, Purohit, and Walsh (2002). Just like the Albright study, the quality of what was written on the forum for our purposes was not terribly different from the writing quality Lorraine normally received from her students. But our results were also quite different from the Albright study due to our abruptly reining in a rather free-form and off-task start to the assignment. When Lorraine saw that the initial writing was mostly social in nature ("chat") and largely in electronic code (slangy), she quickly channeled it in another direction. At the time, I totally agreed with her reaction, knowing that I would have handled the situation the same way. It wasn't until later that I realized that we hadn't given this form of writing a real chance to demonstrate its potential to forward cognitive engagement. If we had, one of two things might have resulted; on the one hand, we might have come up with the same dubious results as the Albright team as their students moved into the acceptable and expected discourse patterns that mark school-based literature discussions. In the Albright case, students adopted the IRE (Initiate, Respond, Evaluate) pattern with one student taking the role of the teacher. The type of spontaneous and energized text "discussion" they had hoped for did not materialize as students were apparently uncomfortable blending their out-of-school literacies with in-school literacy practices. They opted for the safety of in-school "rules."

On the other hand, we might *not* have come up with similar results. First: I believe the energy and immediacy and naturalness of chatroom-type writing can be harnessed to literacy learning purposes. We just have to figure out how to do it. More studies would be helpful; guidelines would be helpful, too. There is great literature in the world borne of sheer energy and impulse, literature that skirts language rules and literary formats. Take Faulkner's *Sound and Fury,* for example, where stylistic and grammatical rules are not only broken but abandoned. No, I do not believe the chatroom will produce the next maverick masterpiece. But I do believe that electronic media, if we know how to apply it in the classroom (give it more scope and freedom, and some models), will foster the same kind of spirit—the same kind of love for and interest in language and writing—and, that the student writer, over time, will modify his/her chatroom style enough to

satisfy teachers and traditional strictures on writing without sacrificing novel expressions of engagement. Second: once again, not having allowed our participants to keep going, we do not know what our particular results and findings might have been.

Literacy Acts and the Widened, Idealized Audience Perception

The Solve-a-Problem exercise in our study involved to some degree the students' feeling they were addressing a wider audience with their essays. There was also some element of what is termed "idealized audience perception" (Walther, 1996), that is, a writing stance in which the writer feels free of the pressures of face-to-face social intercourse and even imagines that the recipient(s) is being positive in their reaction to the note or email or chat or formal essay. The anonymity available through this kind of communication and exchange is viewed as a contributing factor to the idealization dynamic (of both wider and non-judgmental audiences).

In our case study, the participants wrote essays about social pressure and bullying, this pair of particular adolescent concerns being drawn from the assigned novel, *Holes*. One of the students (Beth) took the opportunity to write a lengthy essay that was honest and impassioned, and that clearly depicted the tough peer and social dynamics operative in adolescent groups. This student chose to read her essay before her class. She also chose to post it to the Web, to an unknown audience, to a potentially much bigger audience. Her comment was, "I wondered what the Russian kids on *Literacy Junction* might think about it, if they read what I wrote. I wonder if it's the same over there."

What was interesting about this comment is the thought process behind it. To this particular student, it appears she had not only a wider audience in mind, but also a particular international audience. In this case, it was Russian. It could have been Turkish. The point is that a Web audience is really the kind of audience she wants to address. For her it conceivably provides certain things: first, an audience that is conceptualized as ideal, that is, more mature perhaps (as she said in this regard, "way more understanding than some people in my class"); second, possibly an audience with kindred spirits in it, that is, others who feel the same way she does; and third, an audience she feels is not only bigger than her class of students, but one to which she feels she belongs.

What appears to set in under this kind of audience construct is simply a sense of more scope to the writing task. Students feel they can soar a bit, that they can write to

more understanding audiences, that they can write to a group or groups to which they feel they belong, that are like them. The literacy act in this case derives the benefit of this audience idealization. It is more impassioned and more serious in nature. It is more literary and social in purpose.

The Imperative for Engagement with Systems—Where Do We Go?

Certainly technology (especially technology as represented by the Web and Internet) cannot be ignored; there is more and more evidence of its entrenchment in society and business and government. In education, too, there are more and more tools and sites and practices that are smoothly and productively integrated into classroom learning activities. In the bigger picture, the Internet and computer/media technology are inexorably shaping and dictating how we work and learn and play in our world today. This is the very same world our adolescents operate in on a daily basis. The way they think and act and communicate is conditioned by this type of technology and media.

Although the New London Group (1996) is making a broad point in the quote that follows, it is applicable in today's educational environment. They say, "Students have the right to be taught the 'grammars' of a variety of semiotic systems so they have an extensive reservoir of systems to draw upon when thinking and communicating" (p.718). The Web, and its satellite subsystems and capabilities, is one such system, with a complex although largely unstudied form of semiotics making up its forms of knowledge and communication.

In the area of literacy, Elkins and Luke (1999) state the overall problem and promise eloquently and persuasively:

> Literacy education has significant social and cultural outcomes, as well as cognitive and behavioral ones. And adolescent literacy education is the very forum where we shape identities and citizens, cultures and communities. This is not something we can do by default or as an afterthought. It is not something we can simply do by adding a program or a specialist here and there. We need to rethink our strategies and approaches in line with a better, stronger understanding of youth cultures and adolescents' everyday lives. (Elkins & Luke, p. 403).

Today's youth culture is wired to the Web, to the Internet, to Instant Messaging and chatrooms, to email and to swapping music files, photo files, and so on (Harris, 2001). In order to make a dent in literacy education, we must come up with strategies and

approaches whereby we understand that culture and work within it for our ends. It is imperative we include technology tools, devices, and systems in our teaching practices and learning activities, especially in literacy education. Reading, as noted at the outset of this study, is in decline as an interest among adolescents. This may be true for a number of reasons, one being simply the saturation of their lives with traditional media and Internet-based media. Student mind-sets, language sets, and engagement dynamics are shaped by an electronic and media-based culture. Their grammars come from those domains. For schools to ignore this is to attempt to reach them as if they were in a parallel universe. The educational purpose will end up at a great remove from the engagement dynamics and the operative semiotics of the adolescent world. This is not to say that we should abandon grammatical expectations or "cave in" to out-of-school literacy styles, but rather that we should attempt to blend the two, to make use of prevailing forms of adolescent literacy that are developing rapidly and naturally outside of school.

The Interplay Between Cognitive Engagement and Social Learning - Discussion, Implications, Future Research

As noted, in this particular area we may have missed an opportunity to study the possible effects of overlaying a communications activity (Internet discussion forum exchange) onto a reading/writing task in the context of engagement and of interpersonal or shared learning. The Quick Topic™ exercise had several assessment uses for us: one was to view its effect on "connecting" to text (as discussed) and the other in looking for evidence of shared or interpersonal learning. To quickly summarize, Lorraine and I had the students use the discussion forum or "chatroom" to write responses to boot camp issues in general and to a situational issue from the novel *Holes*.

The thought behind our attempt was to see if the spontaneous type of writing that occurs in a chatroom could be used for fostering group-created knowledge and viewpoints about social issues introduced in literature. Would the fact that the students could engage in an ongoing dialog while working on the assignment help to construct a collective understanding and critical view of (in this case) boot camps and peer pressure? Would the student products reflect or at least seem to benefit from collaborative knowledge building?

The work of Bean (1999) and others (Leu, 2000; Kist, 2000; Elkins & Luke, 1999) as well as the ubiquity of this form of adolescent communication and exchange, seemed to us to provisionally sanction our approach. The existence of chatroom forums, as well as electronic communication channels such as email and Instant Messaging, point to what appears to be an untapped resource for engaging students in social and interpersonal learning. Notwithstanding the results of Albright and his team, these forms of communication and exchange, to our minds, merited continuing experimentation in terms of finding their applicability for literature instruction.

Interpersonal Learning

Thoughtfulness, Rules, and Spontaneity

It is accepted that socially constructed or interpersonal learning goes on all the time, and that it occurs within structured learning environments and through the employment of recognized protocols for engagement. The classroom, of course, is the premiere example of where such learning takes place best. The classroom "style" also conditions teachers' thinking regarding what constitutes acceptable learning activities, dynamics, and language comportment. There is an order (an architecture) to the learning process in the classroom. The chatroom form of engagement does not conform to that order; in fact, it does not appear to conform to any order. It is a highly spontaneous, "ruleless," and colloquial form of communication and exchange.

Western civilization's forms of discourse follow rules propounded over time in order to observe civility and clarity in communication. Right up to today these forms, whether educators always agree with them or not, inform how students are expected to write in terms of style, grammar, tone, organization, forms of address, and so on. One way to characterize it is the term Lorraine used, namely, that she was expecting a "thoughtful online conversation." Implicit in her words was her expectation that the student products would conform to rules for expository writing and language usage, even if she were permitting them to use a "conversational" tone.

The outcome of the chatroom "conversation" satisfied neither what Lorraine expected (both from the standpoint of the quality in general as well as the fact there was no perceived added value due to use of the Internet discussion forum) nor me. My chief interest was to see if a literacy exercise involving text engagement could be changed (in

some interesting way) by having its performance take place online. Within my study, I cannot say this possibility was either definitively proved or disproved.

Shared Creation—An Electronic Direction

As noted, researchers Albright, Purohit and Walsh (2002) knew that the chatroom where their students were engaged in communicating with one another after school hours was highly active, exclusive (in a sense), and its discourse was conducted in the electronic equivalent of a dialect. Yet this discourse was also rich and "raw," and reflected an evolving and exciting adolescent culture, one especially notable in that it also transcended the students' culturally circumscribed home, social, and ethnic environments. For the researchers themselves it was an exciting world in and of itself, as well as an opportunity to evaluate literacy dynamics within it. What ended up dampening their enthusiasm for the effort was their recognition (ultimately) that they had invaded a private realm or aspect of their students' lives. Similarly, after everything was said and done, they saw, too, there did not appear to be any improvement in the quality of the reading/writing experience.

My feeling is that researchers and educators should take a two-stage look at chatrooms (as well as other forms of electronic communication and exchange in the adolescent world) as literacy venues with interpersonal learning and cognitive engagement potential. The first stage would involve conjuring up reading/writing assignments that can be done in such a medium. This will require understanding the nature and dynamics of such exchanges so that a class assignment can be integrated with the process. In fact, as part of this, researchers may need to compile grammars and dictionaries in this form of communication and literacy. The point to all of this is primarily to engage the same student energy into a school-bounded literacy task and cognitive engagement with text goal. It would also need to be presented as a group activity in some way—not necessarily that students write the assignment as a group—but that the assignment be structured in such a way that the students' "product" would reflect *both* what was once "live," "real-time" streams of input, chat, and language (as well as critical engagement), *and* a refracted, collaboratively based image as the result.

The second stage would then involve a translation of the electronic "original" or image into more formal language. Here teacher and students could work together to

locate and isolate the strengths of the chat writing (expressions, insights, imagery, and so on) and see how to use them as ingredients in expository writing. But, it would be more than just integrating words and sentences into the target piece. The point instead would be to reflect the energy and language creativity that occurred in the exploratory "chat" writing in the standard literacy practice.

Dynamics of Collaboration

During the Web Quest exercise, the amount of Web information suddenly available for the students' pre-reading research on boot camps triggered a social learning dynamic that enabled a faster evaluation of the sites and contents. "Take notes! If you find anything really good, tell the rest of us where you found it." More importantly, they were able to share their knowledge as they collaboratively constructed a meaning for what they saw and read and critically evaluated the materials.

Part of the dynamic that occurred during this exercise was a mechanical one in a sense. The students did what students have been doing for a very long time - they banded together to work on a project. They distributed their (quickly evolving) expertise. But from a more "cognitive" aspect, the true importance here of the interpersonal learning dynamic was the group construction of their picture of boot camps. This included their appreciation of the differences among them, and carried over as they evaluated the legitimacy of each web site as a source of information.

Intrapersonal Learning

The Create-a-Character and Write-a-Dialog exercises worked well as activities supporting intrapersonal learning, that is, learning taking place through the dynamic of identity exploration and negotiation. A number of observations came out. First, character portraits (as created by the students) combined actual student traits with traits projected unto the characters the student creators in effect hoped to have. The students were objectifying aspects of themselves in the fictitious characters. Second, they were able to dramatize some of their own personal identity issues, as for example the "fight" in the dialog among characters which "symbolized" Ethan's own yearning for social acceptance from the top social group in the class. Third, the anonymity afforded through the use of a virtual counterpart (the characters) allowed the students to negotiate more safely their

identity development from the standpoint of representing their true selves as well as their ideal selves.

The Performative Dimension

Lewis' study regarding the performative nature of many literacy acts, specifically the interpretation of literature in class discussions, is helpful in interpreting one aspect of all of this. Her main insight is that literature discussions are performances, that what is said by students and how it is said is more a social act than a neutral exercise in literature discussion. In fact, there is no such thing as a neutral discussion. Most importantly, as she maintains, it is more than anything else social standing and each individual's sense of interpretative authority that fixes in place how much they speak up and what they say.

Corey, for example, is more likely to feel free to speak his mind (because of his high social status) then, let us say, an Ethan (who is very anxious about his). Corey, in fact, felt free to read his essay to the class, even though by nature he shies away from class presentations of that kind, and even though reading activities were not his thing. Ethan, on the other hand, at least tries as a student (in fact, he feels it helps him keep his place in the social order), yet does not choose to read his essay out loud. In his case, he may not think he has the "authority" to volunteer his "performance."

In general, students like a Corey and an Ethan will discuss literature in class (everything else being equal) to the degree social considerations/dynamics permit. What exercises such as Create-a-Character and Write-a-Dialog provide for all of the students is an opportunity to establish an identity as well as more comfortably project the opinions and feelings of that identity. Finally, it permits them to (as with Ethan's character) to work out issues. In Corey's case, they were deep personal issues that he managed to dramatize through his character and dialog.

Here the implication for research in intrapersonal learning and cognitive engagement with text is highly promising and exciting, the possibilities for the use of Web/computer/media technology expansive. Students by and large enjoy activities on the Web. If activities are well designed, and if their goals are linked to intrapersonal learning (identity exploration and negotiation, dramatization of personal issues and anxieties, and so on), adolescents have a means of enjoying literature and literacy activities in an

extremely meaningful way. For researchers and educators, the challenge is to harness the technology towards those ends.

Future Lines of Inquiry

I have explored the questions posed at the outset of the study from multiple angles and through a variety of lenses. I believe the findings or "answers" to my initial questions are informative, intriguing and merit consideration as we pursue worthwhile ways to integrate technology-enhanced activities into adolescent reading instruction. Certainly, the findings from one small case study are not conclusive. Rather, they are valuable contributions to collective understandings. As with the findings of Lewis (2001) and the Albright team (2002), the findings from my study shed some new light on current perceptions of literature learning, adolescents and the use of technology-enhanced activities. Equally importantly, the findings suggest productive lines for further inquiry—areas it would behoove us to explore further. Based on what I discovered as I worked with Lorraine and the student participants and keeping in mind the research base we have to date, I believe the following questions and concerns warrant further inquiry:

1. *Cognitive Engagement With Text and Test Results*. Given that technology-enhanced activities appear to have positive influence on cognitive engagement with text, and given that teachers are required to assess student performance using end-of-grade, standardized tests, I believe we need to examine how the use of such activities may or may not affect standardized test scores. Specifically, we need to try to determine if (and how) the apparent text engagement spurred by the addition of technology-based reading activities relates to any improvement in adolescent reading test scores. If it does not, what would a lack of correlation say about the value of such tests as measures of student learning, and of equal importance, what would it say about our present understanding and valuation of the concept of cognitive text engagement?
2. *Service Learning – Taking Words into Actions.* When given the opportunity to share their views on issues of social justice and personal responsibility to others, the student participants in my study voiced strong and socially responsible views. This, to my way of thinking, is a first step toward their becoming socially responsible young citizens. The crucial second step requires taking those Web words into action. A line of inquiry for future research might therefore ask - How can expressions of

adolescent social responsibility and personal agency (that can apparently be triggered by sharing opinions on socially important issues with a Web audience) be transformed into student action? How might technology-based expressions of being responsible members of a global and supportive community translate to an actual commitment to others?

3. *In-School and Out-of-School Literacies.* Lorraine and I experienced firsthand the disconnect in expectations that can occur when attempting to use the chatroom environment for educational discourse. I feel certain that this is a potentially robust educational learning venue, but its best application has yet to be defined. Further inquiry might be directed toward discovering specific models and guidelines that could be used to channel the adolescent energy and interest in literacy practices that occur during Instant Messaging (Internet chat) communication for educational purposes. How might the two forms of literacy learning be brought together for the mutual benefit of teachers and learners? How might students be involved in defining useful models and expectations that would serve to bring the two forms of literacy closer together?
4. *Virtual Counterparts – Exploring Aspects of the Self.* Given what we know about the adolescent tendency to use online personae to explore various aspects of identity and seeing how this was reinforced within my study, we need to explore and develop additional school-sanctioned activities (beyond the Create-a-Character activity) that would encourage this type of intrapersonal growth. What other technology-enhanced activities might be employed to encourage students to openly explore issues of personal identity in the school setting? How might these explorations be made "safe," for students – to ensure "learning about themselves" would occur within a supportive environment, both with their local peers and with a wider Web audience?

Summary Comments

Access to information in today's world is considerably easier. Some of the information itself is more fluid and dynamic. The means to get to it, the nature of its content, the expanding network of linkages to related topics and additional resources, all tend to make many subjects, and the process of teaching, vulnerable to continual growth and change. Subjects, of course, in many ways do not change; math is math, spelling is

spelling, syntax is syntax, and reading is reading. But, views of cognitive learning and teaching processes will be forced to undergo change as the capabilities and means of the Web/Internet technologies affect us in our lives and professions, make us wonder about our approaches to teaching grammar or reading skills when we see the inherent educational potential technology holds. It is difficult to pin down today how to go about preparing for the change, but the challenge is already recognized. As Alvarez (2002) states:

> The key is for teachers and administrators to channel the energies of their students who are involved in electronic, interactive environments and make use of their talents and their interests by devising emergent curricula that engage them in meaningful inquiry. (Alvarez, p.193)

The problem, of course, with emergent issues (whatever they may be) is that they just happen, and usually call for quick reactions. In teaching, it is referred to as seizing the "teachable moment." This is all well and good, but the Internet constantly affords us such moments, and constantly supplies emergent educational issues, which in turn call for—among other things—emergent curricula. We are constantly being deluged with new material and information, new resources, new educational issues, to which we must accommodate quickly and with compatibly responsive and capable teaching practices.

This is one area that educators will ultimately not have much choice about. Forms of literacy are already in play through the pervasive influence and use of the Web and electronic communication; adolescents spend hours in those realms; many variants of their literacy skills and expertise are picked up and sharpened there (Lee, 2002). Their schema of the world is hugely shaped through a technology prism, as well as through popular media (TV). Whether viewing the influx of electronic resources and systems as semiotic systems, as extensions of the school library, as communication marts, or whatever, they are where the action is. And so, whether they are used to improve adolescent engagement with literature, to prompt feelings of social responsibility, or,

perhaps to find new ways to make sense of the complexities of identity formation, educators and teachers will need to work with these electronic resources and parlay their power into teaching strategies and practices.

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APPENDICES

Appendix A:
Introductory letter to participants and their parents/guardians

Dear _____ and Family,

My name is Pru Cuper and I am a researcher at XXXXX University. Throughout the month of September, I will be conducting a study in one of Ms. Lorraine Hampton's 8th grade reading classes. The purpose of this study will be to determine how the use of technology affects reading instruction. Specifically, I am interested in examining how the addition of technology may (or may not) get students more involved in classroom readings. The attached Informed Consent Form explains the research project in detail but I also wanted to give you some idea of my personal background and why you have been selected as a possible participant in this study.

Prior to moving south four years ago, I was a reading teacher for ten years in a large New Jersey middle school. While teaching, I was also raising my own three children who have now graduated from college. Shortly after we moved, I enrolled in XXXX University's doctoral program in the Department of Curriculum and Instruction. The study I will be conducting in Ms. Hampton's class is my dissertation study and is of particular interest to me as a former reading teacher and as a researcher who has developed a web site to help teachers include technology lessons in their reading instruction. At this point, I am trying to determine just how useful a web tool like this might be.

Ms. Hampton has chosen the five students who will serve as the participants in the study based on what she feels would be their willingness to share their views and opinions with me as I observe what is occurring in her classroom. I will conduct a short interview with each of the students at the beginning of the study and again at the end of the study. I have included a more detailed description of the entire study in the attached Informed Consent document. If you decide you would like to be a member of this study, please sign the last page of the Informed Consent Form and return it to me in the self-addressed, stamped envelope I have included.

I look forward to hearing from you and would be happy to answer any questions you may have about this study. My home phone number is: (919) 233-3586. My email address is: pruinnc@aol.com. Thank you for considering this request.

Sincerely,

Pru Cuper

Appendix B:
University Informed Consent Form

Title of Study: Novel Readings: Web-Enhanced Literature Experiences in a Middle School Setting

Chief Investigator: Pru Cuper **University Advisor:** Dr. Hiller Spires

You are invited to participate in a research study. The purpose of this study is to examine how activities that include the use of Web technology affect reading class instruction.

INFORMATION

This study will take place as follows:

1. I will meet with 8th grade teacher Lorraine Hampton to select a Young Adult (YA) novel to read with her class and to discuss possible Web-enhanced activities to accompany the teaching of the novel.
2. I will interview Ms. Hampton and 5 student participants before we begin the study to determine their views on the use of technology during reading class instruction.
3. I will observe and record notes as Ms. Hampton and her students read the novel and complete the Web-enhanced activities she has chosen.
4. I will interview Ms. Hampton and the 5 student participants again at the close of the study to discuss their reactions to using technology as part of their reading class experiences.

Timeline:

Individual interviews will take approximately 20 minutes each. The study will run for approximately 5 weeks. I will visit Ms. Hampton's class each day of the week for one 85-minute session.

RISKS

There are no risks involved in this study that I can foresee. The study will be conducted in the regular reading class setting with the teacher and all of the students in the class working together as they normally would. I will interview the participants in the teacher's resource room before the study begins and again at the end of the study. If I sense that a study participant is growing tired, I will stop the interview. If anyone overhears the interview and asks any questions, I will explain to him/her what the study is about and the reason for the interview.

BENEFITS

1. The findings and analysis from this study will be offered to the educational community (both teachers and researchers) as an example of the possible effects, both positive and negative, of adding a technology component to adolescent literature instruction. There is presently a call (from both the academic community and from education policy makers) for studies of this kind. Teachers are being asked to add technology to their classroom instruction to help raise adolescent interest in reading and to help improve decreasing reading scores, but there are few studies examining the actual effects of adding technology.

2. As I am a former middle school reading teacher, I believe my expertise in this area will ensure a positive learning experience for the participants in this study. I will take particular interest in their perspectives and views and will let them know how much I value and appreciate their participation.

CONFIDENTIALITY
The information in the study records will be kept strictly confidential. Data will be stored securely and will be made available only to persons conducting the study unless you specifically give permission in writing to do otherwise. No reference will be made in oral or written reports which could link you to the study.

COMPENSATION
There is no compensation for participating in this study.

EMERGENCY MEDICAL TREATMENT (if applicable)
Not applicable.

CONTACT
If you have questions at any time about the study or the procedures, you may contact the researcher, Pru Cuper, at 5425 Hunter Hollow Drive, Raleigh, NC, or [919 233-3586], or at my email address: pruinnc@aol.com. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. XXXXX, Chair of the XXXX IRB for the Use of Human Subjects in Research Committee.

PARTICIPATION
Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

CONSENT
I have read and understand the above information. I have received a copy of this form. I agree to participate in this study.

Subject's signature _____ Date _____

Parent/Guardian's signature_____ Date _____

Investigator's signature _____ Date _____

Appendix C:
Data Analysis Matrix

Students	Text Engagement			Social Learning	
	Planning	*Connecting*	*Selecting*	*Interpersonal*	*Intrapersonal*
	Web Quest, QuickTopic	**Solve-a-Problem**	**Lit. Circle, Socratic Seminar**	**Web Quest, QuickTopic, Solve-a-Problem**	**Create-a-Character, Write-a-Dialog**
Kate	"Got me interested"	No essay	Active participation	Active participation, No essay	Melinda, "Problem w. Populars"
Ethan	"Got me interested"	"The In Crowd" essay	Active participation	Active participation	Scott, Did not write dialog
Naomi	"Got me interested"	No essay	Active participation	Active participation, No essay	Darlene, "Lunchroom Blues"
Corey	"No big difference"	"Bullies" essay	Little participation	Active participation	George, "Its' Just Not Cool"
Beth	"Got me interested"	" To Belong or Not to Belong" essay	Active participation	Active participation	Eirene, Did not write dialog

Appendix D:
Initial Student Questionnaire

I. You Outside of School

1. Please tell me a little about yourself - (for example: your age, where you live now and where you've lived in the past, what you like to do in your spare time).

2. What words would you use to describe yourself to someone you were meeting for the first time? What more would you want that person to know about you so he (or she) would get a good idea of what kind of person you are?

II. You as a Student

1. Please tell me a little about yourself as a student. Do you have a favorite subject in school? If so, please tell me why you like it.

2. What kinds of classroom activities do you like best? For example, do you like to work in groups or do you prefer working on your own?

3. Are there classroom activities that you don't particularly like? Please explain.

4. How would you describe yourself as a reader? What kinds of books (or other materials) do you like to read?

5. When you are asked to read a book for school, do you join in the class discussions about the book? Why or why not?

III. You and Technology

1. When and how do you use technology? Do you use it more at home or at school?

2. How do you think teachers might be able to use technology to help their students learn?

3. Do you see any way in which technology might be used in your reading class, particularly when you are reading novels?

Appendix E:
Initial Teacher Questionnaire

I. Teaching Reading

1. What encouraged you to become a reading teacher?

2. What is your history in the classroom? What age levels have you taught? What age level do you prefer teaching? Why?

3. How do you approach the teaching of literature with your students? What teaching strategies do you find work best?

4. What problems (if any) have you encountered when teaching literature to adolescents?

5. What do you think the reading of literature can offer the adolescent learner in terms of personal development (if anything)? Please explain.

6. How do your students respond to classroom literature discussion? Do you think they share their opinions honestly?

7. Do you use reading response journals? If so, how do students' journal compare to student responses during class discussions?

8. How do you assess student learning and engagement with literature? Do you use rubrics? Do you construct the rubrics yourself or do you co-construct them with your students? Please discuss your views on assessing adolescent engagement and understanding of literature.

II. Using Technology

1. How do you use technology personally and what value do you think it has for you?

2. Do you use current technologies as part of your literature instruction? If so, please explain.

3. Does your school encourage the use of current technologies in the classroom? What kind of support/training are you given?

4. Do you think literature instruction with adolescents can benefit from the use of technology? Why or why not? Please explain.

Appendix F:
Introductory Letter from Lorraine Hampton to her students and their parents – August, 2002

"a person's best writing is often all mixed up together with his worst."
(Peter Elbow, *Writing Without Teachers*)

Dear Parents and Student:

I welcome your student to my class for the school year! We are going to have an exciting time reading, writing, publishing, and learning from each other! In case you are wondering what I mean, I want to explain my philosophy regarding writing. I am a firm believer in the process of writing, that's right, the process. In order to learn the process, everyone has to practice by writing and being encouraged. Notice Peter Elbow's statement above: it takes much writing and "weeding out the 'worst'" in order to produce a clear message. In my class, I provide the time and the process.

We will brainstorm first, often using a web or other graphic organizer. Then we will work on rough drafts, with the student having some choice in the topic to be explored. Peer groups will assist in some ways to improve the writing. Several revisions will be produced, looking for content first; what does the writer want to say? Then, as we come to the editing stage, grammar and mechanical issues will be addressed. This is the process that will occur in learning to read and write well. Final polishing will be possible before a final grade is given.

Every person has ideas, feelings, beliefs, memories—a feast of possibilities for writing topics. Writing takes practice, and it is important to have opportunities to write without the threat of constant grades or the pressure to produce "perfect" work for the first draft. Writing can always be improved or changed, it is an on-going process. The thoughts come from WITHIN, from the wealth of experiences in each student's mind! My intention is to help your young person learn to express himself/herself with fluency and eventually, with control, and hopefully, the process will become a habit as growth occurs.

Some of the best writing a person can create comes from personal experience and comes from choice. My philosophy includes starting with oral discussion and reading as well as writing. Additionally, I will be writing with my students. Modeling is the best way to provide examples and demonstrate the process of writing. Giving the students choice of their topics and some latitude in how they produce their thoughts is important and necessary. This choice gives students ownership of the work.

My concern lies in providing time to write, in helping the writers get started, and providing a "coaching" atmosphere so that each student can experience success and gain a sense of confidence and pride in his/her maturing work.

Several theorists and writers, such as Nancy Atwell, Ken Macrorie, and Donald Murray support this philosophy regarding the teaching of composition, so the process may sound unusual but has been used for quite some time with excellent results. My students will experience what might be called writing from the "inside out!" They will be able to express the thoughts and emotions inside themselves and discover their new voices.

All this activity takes practice and encouragement as your young person learns the complete process involved in "making meaning." We will have fun as we discover the strategies that will help your student. Though this approach may sound "easy," it is far from being so. Writing is work that can be pleasurable as the writer is given the opportunity to tell his/ her story. It becomes a journey that is memorable in itself. The grading which is required by the school system is more to "keep us honest" as we follow our journey's path. After the completion of grades, the student-chosen two pieces each nine weeks are edited, with support and revision, and submitted by the student finally for weightier grades. Each student's portfolio will be full of many drafts and pre-writing work.

Your encouragement comes in helping your student find quality time in which to read, reflect, and write consistently. Only through continual practice can the process of writing be truly experienced! I look forward to taking the journey with your young person. Thank you for sharing your youth with me this school year. I am available for questions and comments. Just call the school office and leave a message to have me call you, or you may reach me at my Schoolnotes.com site. Thanks again for your support.

GRADING:

To be fair, I am listing the actual weighting of the grades that will be given in our class.

Daily work	25% in-class assignments, quizzes, etc.
Journaling	25% reflections and class and homework
Vocabulary	25% Greek, Latin roots, and other vocabulary learned
Final drafts (2)	10% two final writings chosen by the student to turn in polished
Tests	10% major test to assess understanding of a literary piece
Self-evaluation	5% at the end of each 9 weeks, a serious self-evaluation of work

NOTE: No late work accepted. I will follow county policy for makeup work when a student has an excused absence.

BEHAVIOR: I expect good behavior from all of us in the classroom, showing respect for all. The small amount of negative behavior will be treated in the following manner: 1) Verbal warning 2) Student conference 3) Silent lunch 4) Parent conference. I will follow the school and county's rules regarding the dress code, chewing gum, and other requirements. Thanks again for your support. Please sign this letter and have your young person return it to me which indicates that you understand these conditions.

Yours truly,
Lorraine Hampton
8th Grade Language Arts, Chairperson
Yearbook Advisor, School Improvement Team

Student signature: _____

Parent (guardian) signature: _____

Appendix G:
Sample Schoolnotes.com Web posting by Lorraine

Welcome to my Web Page!

December 16, 2002

For the next 3 days (through December 18):

1) I will be working on Greek Roots Unit 9. Because of the ice days, I had to reorganize last week. I am sorry for not posting last week; I had finals at the university and the yearbook deadline (one-half of the book due). For Greek Roots, we learned Unit 9. The test is on Tuesday, December 17. I will give Unit 10 words on Tuesday. These roots will be continued after Christmas Break.
2) We are working on literature circles where a group of students choose a novel to read on their own and discuss in sections agreed upon by the group. The students are to bring 3 questions to each meeting (today, Monday, December 16 is the last one for discussion and Wednesday, December 18 is for presenting something about the novel to the class. We will video-tape the presentations.
3) First block is writing a paper about Christmas due Tuesday, December 17. Third and fourth block have a paper due Monday, December 16 (today) on some aspect of Hamlet or Rosencrantz and Guildenstern Are Dead (or both).
4) The Williamsburg, VA trip is Thursday, December 19. Students must be here and on the bus to leave at 7:45 am. They should dress in layers for the changing weather during the day. They must have a bag lunch (labeled) and one drink (labeled). Only water and snacks are allowed on the bus. The bag lunch and drinks will be in the underside of the bus. We sent home the emergency numbers on the letters, but one of them is my number. Please call only if it is an emergency. I do not have free minutes. Mrs. Harvey will post the time of return on the school doors if we are going to be any later than 9:45 pm.

Thanks for all you do to support your student. May you have a blessed season. I plan to sleep some!!

FORMAT FOR WORK:
Only dark blue or black ink pens should be used as I grade papers late at night often and find pencil marks hard to read at times. Also, please don't write on the back of the pages; it gets hard to read as well.

STANDARD HOMEWORK:
Every Monday, 3 new words are due!! The format for the 3 new words each week is the following: the new word, a brief definition in plain words, the date heard or seen, the source, the phrase or sentence in which the new word was found. I have offered help with the definitions; they also get about 20-25 new words each week in class alone, and I am asked to stop and define as well as provide a sentence with the new word for students in

each class. There is no excuse for not having these words. This will be a consistent feature throughout the year.

Your student should be reading his/her literature circle book, looking for 3 new words weekly, completing grammar work on Monday and Wednesday evenings.

I reserve the necessity to adjust assignments depending on what is accomplished in class. See the note below on assignments. They should write down the assignment each day off the board.

Again, I am enjoying your young person. Thanks for sharing them! Lorraine Hampton ☺

ASSIGNMENTS:
Each student should write nightly assignments down which is written on the white board. The homework depends on where we get in class.

We continue work on analogies, quotes, new words, metacognition (thinking about how one thinks and learns), writing, reading, and grammar.

GRAMMAR:
We have been practicing labeling sentences for sentence patterns as well as recognizing prepositional phrases, the decoration of sentences, as I tell the students.
The sentence patterns to be tested are:
SA, SAD, SLPN, S=subject, A=action verb(s), L=linking verb(s), and D=direct object, PN=predicate (verb) portion of the sentence noun or pronoun, PA=predicate (verb) portion of the sentence adjective. A verb is action when the subject can do the acting. I tell the students to find the verb first, ask the question "who or what" in front of the verb to find the subject, and "who or what" after the verb to find the direct object or predicate nominative (noun or pronoun). If the word after the linking verb describes the subject, it is a PA. Learning the sentence patterns enables the writer to know whether the subject and verb agree, whether the sentence is indeed a sentence or a fragment, and how to write more mature sentences. The prepositional phrases always contain a preposition and an object and just dress up the sentence. No important part of a sentence can be found in a prepositional phrase. An example of a prepositional phrase is "in the door" or "around the house" or "in spite of the weather." Note that a preposition can be compound as in "in spite of . . ."

I will update this site weekly. Anytime, just email me regarding your student. I DO CARE. I am available.

In addition to being available through this site (you can email me), you might call the school and leave me a message. Thank you for sharing your young person with me this year. I am thrilled to be teaching such great youth.

Yours, Mrs. Lorraine Hampton

Appendix H:
NC Standard Course of Study and the Teaching of ***Holes.*** (L. Hampton)

Goals and Objectives from the NC Standard Course of Study to be addressed in studying the young adult novel *Holes,* by Louis Sachar.

Primary Goal and Objective 5.01:

Competency Goal 5—The learner will respond to various literary genres using interpretive and evaluative processes.

5.01: Increase fluency, comprehension, and insight through a meaningful and comprehensive reading program by:

- Using effective reading strategies to match type of text
- Reading self-selected literature and other materials of interest to the individual
- Reading literature and other materials selected by the teacher
- Assuming a leadership role in student-teacher reading conferences
- Leading small group discussions
- Taking an active role in whole class seminars
- Analyzing the effects of elements such as plot, theme, characterization, style, mood, and tone
- Discussing the effects of such literary devices as figurative language, dialogue, flashback, allusion, irony, and symbolism
- Analyzing and evaluating themes and central ideas in literature and other texts in relation to personal and societal issues

Other Goals:

Competency Goal 1—The learner will use language to express individual perspectives through analysis of personal, social, cultural, and historical issues.

1.02: Explore expressive materials that are read, heard, and viewed by:

- Generating a learning log or journal
- Taking an active role in and/or leading formal/informal book/media talks

1.03: Interact in group activities and/or seminars in which the student:

- Shares personal reactions to questions asked
- Gives reasons and cites examples from text in support of expressed opinions
- Clarifies, illustrates, or expands on a response when asked to do so and asks classmates for similar expansion

1.04: Reflect on learning experiences by

- Evaluating how personal perspectives are influenced by society, cultural differences, and historical issues
- Appraising changes in self through the learning process
- Evaluating personal circumstances and background that shape interaction with text

Competency Goal 2: The learner will use and evaluate information from various sources.

2.01: Analyze and evaluate informational materials that are read, heard, and/or viewed by:

- Summarizing information
- Determining the importance of information
- Making connections to related topics/information
- Monitoring comprehension
- Drawing inferences
- Generating questions
- Extending ideas

Appendix I:
Follow-Up Student Questionnaire

The Effects of Using Technology

1. Let's start by listing all of the different activities your class used while you were reading the novel *Holes.* Which of these activities did you like best? Why? What made a particular activity better than the others? (If you had more than one favorite, please discuss all of them.)

2. How do you think using technology affected your reading of the novel *Holes*? Do you think it made you read the book any differently than you would have without the technology activities? Please explain.

3. Do you think using technology as part of your reading of the novel *Holes* changed the way the students in your class acted – either with each other or with Ms. Hampton? Please explain any changes you may have noticed.

4. What, in your opinion, is the best way for teachers to use technology in reading class? What suggestions would you have for teachers?

5. Tell me about the character you created for the Web. Why do you supposed you created this specific character? Is this person like you in any way? Did knowing that your character was going to be viewed by many people from around the country and around the world affect you as you created him/her? If so, how?

6. Compare the reading of *Holes,* using the Web in school with your classmates as part of the reading activities, to the reading of other books, such as *The Outsiders*.

Appendix J:
Follow-Up Teacher Questionnaire

Effects of Adding Technology

1. How you feel the addition of technology-enhanced lessons affected the teaching of the novel *Holes* for you and for your students?

2. Do you think the addition of technology was beneficial in terms of student engagement with the novel? Please explain.

3. What was the effect of the addition of technology on student products? Were they very different from what you have received in the past when you did not add a technology component? Please explain.

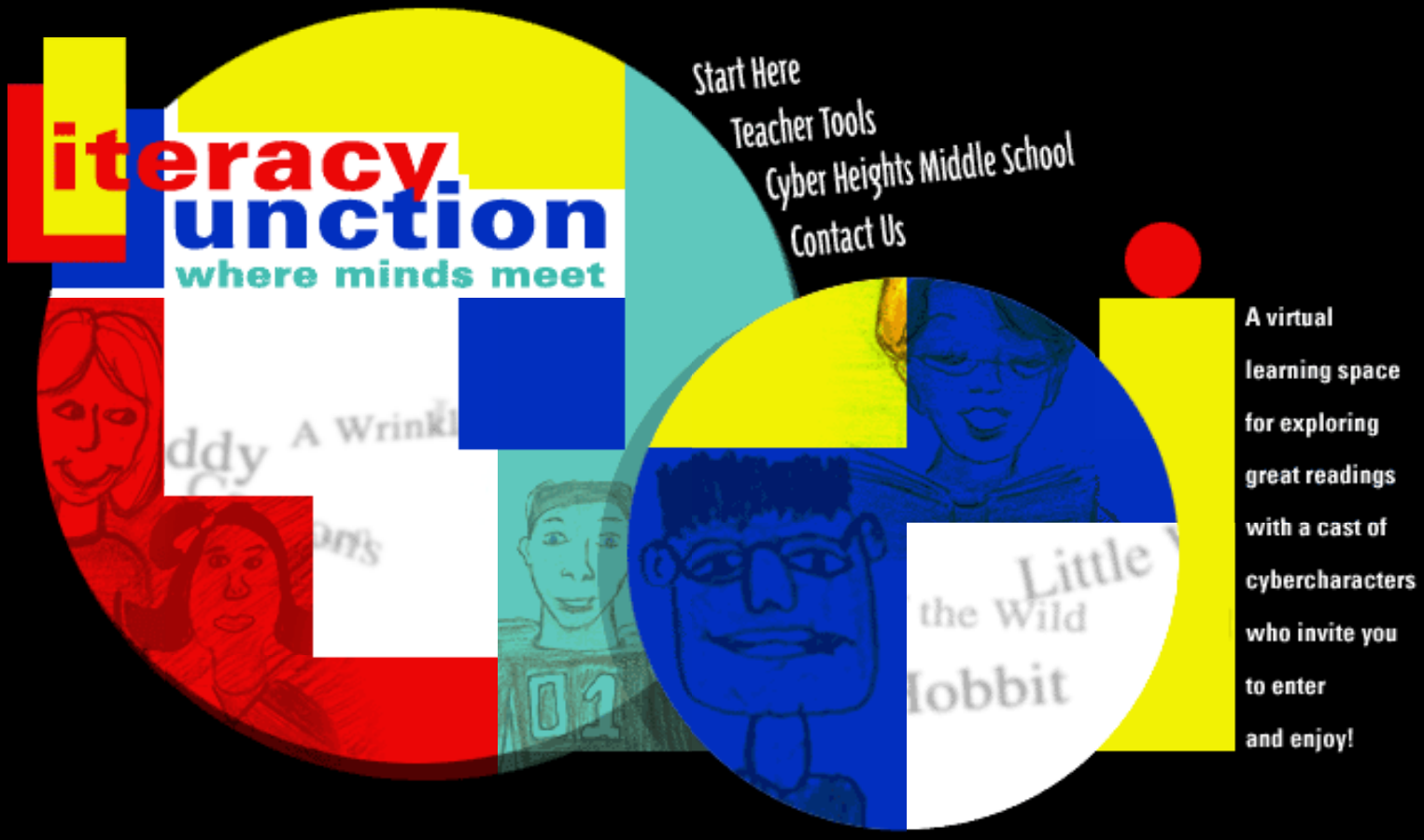
4. Did your role within the classroom change in any way because of the addition of technology-enabled lessons? Please explain.

5. Did the students' roles with each other change in any way? Please explain.

6. Based on this experience, would you be likely to add a technology component to your reading class instruction in the future? Why or why not?

7. If you were to add a technology component in the future, what might you do differently to improve the experience for yourself and for your students?

8. What do you see as the potential for technology use in the adolescent reading classroom setting, (if you see any potential at all)?



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