

ICTS AS A MEDIUM FOR INQUIRY: AN EXAMINATION OF ADOLESCENT LITERACY
PRACTICES IN A 9TH GRADE ENGLISH CLASSROOM

by

LESLIE CLAIRE BOTTOMS

(Under the Direction of Donna E. Alvermann)

ABSTRACT

In this study, a variety of methods were used to determine how specific information and communications technologies (ICTs) affected the literacy practices of ninth graders in the controlled but real-world environment of their classroom. The study examined the feasibility of using technology as a medium for student inquiry into literature, as well as how such an integration of technology influenced student academic performance on traditional assessment measures. Drawing on the work of Dewey, Bakhtin, and Labbo and Reinking, this study sought to determine whether an inquiry-technology combination could ease practical issues of literacy instruction, striking a balance between traditional and progressive approaches to schooling. Based upon statistical analysis, student test scores modestly improved after accessing an online community to discuss assigned texts. Limited participation in the study, however, likely impacted results, as well as raised additional questions about students' motivation to adopt new technologies for classroom practices.

INDEX WORDS: Adolescents, ICTs, Inquiry, Literacy practices, Technology, Traditional education

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DEDICATION

I would like to dedicate this work to marginalized adolescents who are searching for new ways to communicate thoughts, ideas, and feelings; to those students who find little meaning or relevance in their modern day school experiences; as well as to those who would love the opportunity to take part in the digital culture, but who are held back due to economic or cultural constraints. May these students someday, some way, find the means to express themselves to their fullest potential and may our public schools endeavor to support them and the teachers who guide their journeys.

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CHAPTER 1

TECHNOLOGY AS A MEDIUM FOR ADOLESCENT INQUIRY

I must call my own stances into question. I must risk my own writings and thoughts. I must use my authority as a way for us all to realize our own authoritorial stances rather than as a means to reify my educational fiefdom.

-- Bob Fecho, 2004, p. 50

Introduction

The United States Department of Education (see Adolescent Literacy section, ¶ 1) described the present state of high-school aged literacy as “alarming.” An issue paper (*Every young American a strong reader*, n.d.) posted on the Department’s website (<http://www.ed.gov/about/offices/list/ovae/pi/hsinit/papers/reader.pdf>) suggested that adolescent literacy rates are not improving, with an estimated one-third of beginning ninth graders reading one to two grades below grade level. Additionally, more than 5 million high school students have been found (Hock & Deschler, 2003) to not read well enough to understand their textbooks or other grade-appropriate materials.

In seeking a means to reverse these trends, I investigated how changing adolescent literacy practices could be used to challenge and extend traditional notions of school literacy (Knobel, 2001) by encompassing a process of inquiry and meaning making. The study tracked ninth grade English students in a Midwestern community over the course of two literature units.

Participants interacted through a secure Web portal that offered multiple means for communications, including popular information and communications technologies (ICTs) (Lankshear & Knobel, 2003) such as online discussion boards, chatting, and email. The portal area was considered the students' online community because its role was to act as a gateway for the practical extension of the traditional classroom into the digital world.

To understand how the use of such ICTs could affect an adolescent student population and increase their level of textual inquiry, I returned to my former high school, a public high school over 500 miles away from my home in Georgia. The school's location in a small town, comprised primarily of low- to middle-class families, provided a snapshot of today's youth culture living in the Heartland (Lewis & Fabos, 2000), an area known more for traditional values than trendsetting. I found that the potential conflict between tradition and technology made the location an interesting site in order to compare and contrast findings with existing research (Cuban, 2001) that focused on more technologically savvy communities. The fact that I am an alumna of the participating school and that I had been active in the community as a youth enabled me to take advantage of a unique access opportunity. Due to an implied level of trust as a former insider, I was privy to materials and insights that likely would not have been shared in another environment.

For example, I was welcomed by the faculty and staff of the school, given open access to the portfolios of students who had signed study permission forms, and allowed to listen in on privileged conversations about specific student and classroom issues. This level of access enabled me to develop a more complete picture of the school landscape and tensions that existed. Trust from and access to participants played a critical role in the development of this study. The

participants' lives and experiences gave deeper meaning to the hard data accumulated in research.

Specifically examining how these students engaged with text, study participants' online responses to assigned literature were monitored through the community and later analyzed to determine the types of questions and statements students posed to their peers, as well as what aspects of the text occupied their thoughts. Comments were compared to previous class assignments for the purpose of evaluating changes in how the students used text. Materials and assessments created before and after the online engagement were also analyzed to determine how the use of technology as medium for thoughtful exchange affected traditional notions of student achievement.

Research Questions

In designing a study to evaluate the use of ICTs in a student-driven online community devoted to textual inquiry, the following questions were put forth:

- Can technology act as an enabler for student inquiry into literature?
- Does the use of ICTs as a medium for student inquiry positively affect student relationships with school texts?
- Can the use of ICTs in the evaluation of literature foster student inquiry as a process for meaning cultivation, moving students beyond literal translations of text?
- How is student performance on traditionally graded work affected by the use of communications technologies for inquiry?

An experiment within a current ninth grade English classroom was implemented as an inquiry into these questions.

Epistemology

To test the theory that a specific type of technology (ICTs) could act as an enabler for student inquiry into literature, the root question should be examined. In this case, the root was a straight-forward, objective question – could it work? Although many other questions were asked as part of this study, when broken down, those questions sought to find evidence essentially to support or reject the concept of using ICTs to foster inquiry approaches in the classroom. As such, the larger theoretical framework options that made the most sense for evaluating the study were limited to a positivist or post-positivist stance.

Positivism is a paradigm frequently associated with Auguste Comte that flourished in the early twentieth century with the Vienna Circle. The framework endorses a fundamentalist approach to science (Phillips & Burbules, 2000). Knowledge and facts must be sought and verified through the scientific method of observation and measurement (Swann, 2003), excluding those areas, such as ethics, religion, aesthetics, and metaphysical viewpoints (Crotty, 1998), which cannot be verified as fact.

The positivist stance is one of pure objectivism. There is no room for value judgments. As such, a scientist operating within a positivist framework would be expected to be an observer while separating oneself from what is observed (Onwuegbuzie, 2002). The scientist must remain independent if his or her data is to be accepted as fact.

The post-positivist framework however, considered by some to be a movement forged by enemies of science (Preston, Munevar & Lamb, 2000), offers a looser construction while remaining a primarily objectivist epistemology. The paradigm, if it could be considered such, is most often associated with four men: Karl Popper, Thomas Kuhn, Paul Feyerabend, and Imre Lakatos. Each of the four scientists was a critic of the absoluteness of logical positivism.

Although nuances in their belief systems were often negotiated as public grievances, they were united in their acknowledgment of the fallibility of science, the only true characteristic of post-positivist thought (Phillips & Burbules, 2000).

Belief in the fallibility of science often has been wrapped up in Popper's falsification principle (Swann, 2003). This approach challenged scientists to flip their view of the world. Instead of seeking to prove a hypothesis true, the theory of falsification urges one to prove a supposed truth false. Though before Popper's time, eighteenth century philosopher David Hume (Crotty, 2003) provided an excellent example of falsification in action by questioning the temperature of boiling water. While one may repeatedly test the temperature of water, consistently finding to boil at 100°C, there is no logical reason to believe that water will always boil at 100°C. As many times as boiling water has been tested, the 100°C benchmark is commonly accepted as truth. According to the post-positivist view of the world however, it could only be a provisional truth rather than an absolute in order to allow for future unknowns. There could be environmental changes for example that cause water to boil at 97°C. Post-positivists would not rule out this possibility, actually seeking it in order to prove the benchmark fallible.

In the preface of *Conjectures and Refutations: The Growth of Scientific Knowledge* (1962), Popper described his work on falsification as developing a theory of knowledge and its growth:

It is a theory of reason that assigns rational arguments the modest and yet important role of criticizing our often mistaken attempts to solve our problems. And it is a theory of experience that assigns to our observations the equally modest and almost equally important role of tests which may help us in the discovery of our mistakes. Though it stresses our fallibility it does not resign itself to skepticism, for it also stresses the fact

that knowledge can grow, and that science can progress – just because we can learn from our mistakes. (p. vii)

Instead of seeing an endpoint at an experiment's conclusion, Popper saw a beginning. Absolute truth was not likely to be recognized (Popper, 1959). The best one could hope for was a presumption of truth, which could be proven wrong over time, and which scientists should endeavor to prove wrong. Popper stated that “every scientific statement must remain *tentative for ever*” (p. 280), allowing for changes in environment, science, and society, and encouraging the ongoing questioning of provisional fact.

The notoriety of this approach has seemed to propel Popper into the position of founder of the modern conceptualization of post-positivism, despite the earlier work of physicists Werner Heisenberg and Niels Bohr (Crotty, 2003) who first challenged the traditional positivist belief that the observer can remain independent through Heisenberg's uncertainty principle. The uncertainty principle contends that because an object is observed at a certain time within certain circumstances by a certain person that can never be replicated exactly, findings can never be conclusive. In addition to any changes that may occur over time, the object itself also becomes changed by virtue of the fact that it has been observed. Kuhn's work (as cited in Phillips & Burbules, 2000) built upon this portion of the uncertainty argument by questioning the neutrality of any scientific discovery. Kuhn contended that the inherent value judgments of the observer enter into any experiment, thus negating the ability to achieve absolute objectivity. Some value judgments therefore must be in effect to lead a scientist to determine whether or not a theory is worth testing.

In the case of this study, I held a value that student inquiry into text is important. Therefore I wanted to conduct a test to see if one means of exercising inquiry (through

technology) could be effective in today's school environment. The value of inquiry led me to the test its implementation. The value may inform the test, but through the nature of an objectivist stance, it cannot unduly influence scientific results. Although the goal was to minimize bias, there was no way to fully eliminate it.

I selected the post-positivist lens for my study for several reasons. In addition to the realistic acknowledgment that some values inevitably enter studies, the framework's tenet that there is no absolute, right testing environment to produce universally truthful findings was important because there is no such thing as a universal classroom. Students, teachers, attitudes, and curriculums will always be variables. Additionally, the provision must be accounted for that technology constantly evolves. If one based a scientific truth on an interaction with one type of technology, it would be outdated and have little value almost from the onset because another version or another technical solution would likely be on the market. Therefore what warrants truth in one setting is likely to change in the future or in another setting. These changes should be allowed in seeking provisional truths that advance science instead of absolute truths that could potentially stall scientific progress. For these reasons, a pure positivist stance for this study was rejected.

Lenses

In order to evaluate first the need for inquiry in the classroom, and then the use of technology as an effective medium for inquiry, one must have cause. This study operated under and tested the assumption that traditional schooling hinders adolescent literacy by failing to address the needs of a specific student population. As such, inquiry is one approach to learning that could be implemented in classrooms to increase adolescent literacy levels. By teaching

students inquiry skills through a medium already used by adolescents in their daily lives, there may be an increased chance for successful implementation on all levels.

Kuhn's (1962) work stressed that as a researcher I could not create such an assumption in isolation. I needed to draw broadly upon the works of respected authorities in order to earn respect for my own theories. Solutions to problems cannot "be merely personal but must instead be accepted as solutions by many" (p. 167). As such, I present the arguments of this study through the lenses of certain theorists. Essential to the argument are: Dewey's (1938) views on traditional vs. progressive education, Bakhtin's (1981) concept of heteroglossia, and Labbo and Reinking's (1999) multiple realities perspective. Background for these theories will be discussed in the paragraphs that follow.

Traditional vs. Progressive Education

Dewey (1938) began *Experience and Education* by outlining a major conflict in education that stemmed out of human nature. In his opening words Dewey stated, "Mankind likes to think in terms of extreme opposites. It is given to formulating its beliefs in terms of *Either Ors*, between which it recognizes no intermediate possibilities" (p. 17). In terms of education, he applied this perspective to the formation of progressive education, something he believed was developed as a response to traditional education.

Dewey defined traditional education as a scheme of imposition passed from adults to youth. He asserted:

[Traditional education] imposes adult standards, subject-matter, and methods upon those who are only growing slowly towards maturity. The gap is so great that the required subject-matter, the methods of learning and of behaving are foreign to the existing

capabilities of the young. They are beyond the reach of the experience the young learners already possess. Consequently, they must be imposed. (p.19)

The result of this imposition in Dewey's opinion was static knowledge, knowledge that did not take into account original context or make allowance for future change. It assumed cultural continuity throughout time; therefore there was no need to alter how knowledge was passed down through generations. Traditional education marked the school as an institution.

In contrast to the notion of traditional education, Dewey explained the calls for reform brought by progressive education. Progressive education, he claimed, was a response to traditional education that exemplified the human need for an either-or approach. By rejecting the concept of traditional education, progressive education simply offered up an alternative in retaliation, rather than conceiving of its own structure based on that structure's merits. It was a non-specific approach to education and reactionary in nature.

Although Dewey viewed progressive education as an improvement over traditional education because traditional education discounted authentic thought and student experience, he criticized progressive education for a complete rejection of the traditional. Dewey believed there was a need for some structure. He stated "When external authority is rejected, it does not follow that all authority should be rejected, but rather that there is need to search for a more effective authority" (p. 21). Dewey contended that for progressive education to be effective, it must build upon positive values, such as understanding the student experience and situating information in context, rather than to stem out of a negative response to something already in existence.

Bakhtin's (1981) notion of heteroglossia built upon this idea.

Heteroglossia

Bakhtin's (1981) essay *Discourse in the Novel* was largely concerned with the construction of language, but his work illuminated the gulf Dewey described between traditional and progressive models of education. Bakhtin examined what he called the centripetal and centrifugal aspects of language. Centripetal forces propel a unitary language, meaning these forces act to ensure that there is common understanding of language through language. Centripetal forces are usually imposed by those working to promote a discourse of power as the unitary language. There is little room for acceptance of deviance from the unitary language.

By contrast, there are also centrifugal forces of language. These work to deconstruct, decentralize, and destabilize the unitary discourse. Centrifugal forces value experience and honor the speaker, rather than the system. They are rooted in social and historical stratification. Bakhtin saw the need for centrifugal forces, but he also maintained that if centrifugal forces overtook centripetal ones, meaning the common constructs of language were replaced by authentic language, chaos could ensue. People would struggle to communicate because the commonality would be gone.

In order to create some balance in the system of language and communication, Bakhtin advocated for "heteroglossia" (1981, p.263). Heteroglossia is defined as:

The base condition governing the operation of meaning in any utterance. It is that which insures the primacy of context over text. At any given time, in any given place, there will be a set of conditions – social, historical, meteorological, physiological – that will insure that a word uttered in that place and at that time will have a meaning different than it would have under any other conditions; all utterances are heteroglot in that they are functions of a matrix of forces practically impossible to recoup, and therefore impossible

to resolve. Heteroglossia is as close a conceptualization as possible of that locus where centripetal and centrifugal forces collide; as such, it is that which a systematic linguistics must always suppress. (p.428)

Heteroglossia describes an ongoing tension necessary for language and society to continue to develop. Some common system of language is needed in order to understand one another, yet it should not be so constrictive that it devalues personal experience. Situating the common language in the context of stratification is the way to balance absolute power and absolute chaos. There is a constant push-pull relationship between the two.

Related to education, the traditional education model could serve as a centripetal force. It is a centralized, unitary method of distilling knowledge. Progressive education would be considered a centrifugal force, needed to destabilize the oppressive nature of traditional education. In reality however, both forces need to work together in order to understand the contexts of one another and value the benefits of each approach, while recognizing the limitations and dangers in order for education to evolve.

A model for using the tension of these forces to successfully enhance adolescent literacy was what I endeavored to test in this study. In doing so, I used a multiple realities perspective (Labbo & Reinking, 1999) as the level, attempting to negotiate the two forces and ground them in the everyday world of education.

Multiple Realities

A multiple realities (Labbo & Reinking, 1999) perspective enables one to take a broad look at the different pedagogical philosophies in practice within school systems while continuing to draw from relevant theories and research that may not mirror or explain those in practice. In terms of everyday examples, this approach could offer a framework for understanding the

conflict between the teacher engaged in the practice of lecturing to his or her whole class and the research studies that directed him or her to follow a more student-centered teaching practice. The teacher continued to operate under his or her own pedagogical philosophy despite calls to do otherwise because he or she sensed the time constraints of the curriculum and feared classroom management issues could arise if another approach was implemented. Another teacher in the school could have used collaboration techniques with students but resisted bringing in new technologies to assist the collaboratives because he or she knew little about how to integrate technology with the curriculum, aside from asking students to type their papers in Word documents. This practice operated in contradiction to theoretical arguments in support of new classroom uses of technology. Students may have looked to find ways to make school more interesting and relevant to their lives, but instead found themselves constrained by the overarching traditional educational philosophy that maintained school as an institution. These are only a few of the multiple realities of schooling that can and have operated.

Because school issues are complicated, the worlds of practice and theory cannot always peacefully co-exist. Differences of opinion regarding appropriate educational practices run rampant. As such, a multiple realities perspective made sense when trying to envision a workable pedagogical model for the future that took into account practical applications of theory and the need to navigate the tension between traditional and progressive education approaches.

Although a multiple realities perspective looks at the broad landscape of factors that affect the tension between theory and practice, it encourages focused, in-depth research in order to find new research-to-practice connections that may ease specific instructional concerns. Applying this perspective to issues of technology integration in literacy instruction, Labbo and Reinking (1999) listed five goals for successful implementation. They were:

1. New digital technologies should be available for literacy instruction.
2. New digital technologies should be used to enhance the goals of conventional literacy instruction.
3. New technologies should be used to positively transform literacy instruction.
4. New technologies should be used to prepare students for the literacy of the future.
5. New technologies should be used to empower students. (p.481)

Related to my specific study, I sought to understand if technology could fulfill these goals when used for an inquiry approach to literature. The online community set up for this study was intended to reflect the five goals in the following ways:

1. The online community available to ninth grade English students was for the purpose of studying literature, which included elements of both reading and writing (literacy).
2. Because the online community was used as a medium for discussion, it was considered a tool designed to enhance the learning that went on in the traditional classroom.
3. Purposing the online community for adolescent inquiry into text enabled students to increase their exposure to and interaction with literature.
4. Navigating the online community provided students with useful skills for the future, be they technical or critical thinking skills.
5. The online community used for this study was partially created with the intention of giving students a new arena for expression. By not restricting the form of written responses and encouraging a sense of community, the online gateway could empower students. They could use their voices in ways they would be unable to within traditional classroom boundaries.

Whether or not these goals would be realized upon practical implementation of technology in the classroom remained to be seen when faced with the multiple realities of schooling. The sense of the unknown in implementation however was the reason a study of this nature was needed.

Summary

In response to the negative trends associated with adolescent literacy in the United States, I embarked on a post-positivist study to evaluate the potential for using technology as a means for adolescent inquiry into text. The primary goal was to determine the inquiry-technology approach's effectiveness amid current educational realities. I drew upon the theories of Dewey (1938), Bakhtin (1981), and Labbo and Reinking (1999) to situate the context and the need for such a study.

Moving forward, I will situate our current educational system within Dewey's concept of traditional schooling, while exploring some of the practical issues associated with inquiry and technology approaches. The literature also will be examined as to why adolescents are a unique population in terms of their literacy needs, as well as what pedagogical practices could better address these needs. A common thread throughout this write-up will be the multiple realities of schooling, how they can impede progress, and what can be done to overcome them. The resulting document tests one approach that endeavored to traverse and reconcile the realms of traditional and progressive education.

CHAPTER 2

LITERATURE REVIEW

For apart from inquiry, apart from the praxis, individuals cannot be truly human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other.

Paulo Freire, 2003, p.72

Introduction

When Dewey (1938) discussed traditional education, he warned against such dangers as teaching concepts in isolation, failing to acknowledge the experiences of students, and imposing content and methods “from above and from outside” (p. 18). In the sixty-seven years since the introduction of Dewey’s *Experience and Education*, public schools and classrooms in the United States have largely perpetuated the traditional model of education and instruction (e.g. Alvermann, 2002; Powell, 1999). Certainly there have been exceptions to traditional school experiences and environments (e.g. Felton & Herko, 2004; Kemp, 2005; and Lloyd, 2004), but it should be acknowledged that the present educational climate has rewarded a specific type of instruction which has been distilled through the system. Because this is a reality in which teachers must make instructional decisions, regardless of how research may pull them, it is important to understand the practices that have been rewarded and why (e.g. Casabarro, 2005) before attempting to change instructional practices. If one does not inquire into the present state

of the classroom, into understanding its pros and cons, attempts to advocate an alternative instructional approach are born out of opposition and rejection and cannot be considered to truly recognize and solve the problems of traditional education (Dewey, 1938). Thus, the first step in understanding the status of current instruction, in this case adolescent literacy instruction, is to examine the multiple constructs that fall under the heading of traditional education.

Yielding first to Dewey's concept (1938) of traditional education discussed in the previous chapter, one tended to think of a teacher standing in front of the class dispensing facts and figures as the students sit at their desks receiving the information. Students were not active participants according to this conceptualization. They had little or no say in what or how they learned. The teacher was the authority and the background of each student was insignificant in how the teacher chose to impart knowledge. As students moved from class to class, subject to subject, there was little attempt to make connections between the content areas or to apply textbook lessons to real life; therefore information became segmented, locked away in the mind, filed under math, English, or science, called out only on command.

Bruce and Bishop (2002) described the traditional curricula and notion of literacy similarly, with its focus on the delivery of content, rather than on understanding the material. They stated:

Knowledge is assumed to exist or be encoded within texts. The role of the teacher is to manage the delivery of this knowledge, and the role of the learner is to absorb as much as possible. More specifically, students are expected to master certain basic learning skills such as solving problems, remembering textbooks, following directions, working alone, and 'covering' the curriculum. (p. 707)

Paulo Freire (2003) delved further into this construct, deeming it the banking model of education. He described it in terms of the transmission of content, saying, “Instead of communicating, the teacher issues communiqués and makes deposits which the students patiently receive, memorize, and repeat” (p. 72). As a result, students suffered from a narration sickness, where “in the process of being narrated to become lifeless and petrified” (p.71). Freire in particular found this approach to education to be a contributing factor in the maintenance of oppressive societies and social hierarchies. Because the student’s role in such a system was not to question the knowledge imparted, he or she simply accepted the status quo and moved along with daily life.

Harpaz (2005) also gave a clear and scathing depiction of modern traditional schooling in his article *Teaching and Learning in a Community of Thinking*. In it, he discussed the traditional “factory” (p.136) schools of the United States and Israel in order to express the need for reform through the development of a community of learners. He described the four components of traditional education as atomic pictures. Harpaz defined these pictures by stating: “learning is listening; teaching is telling; knowledge is an object; and to be educated is to know valuable content” (p. 137). While not always explicit, these pictures have been said to guide routines and create norms as a result of authoritative teaching. The characteristics were deemed as atomic pictures because they were viewed as part of a greater scientific scheme based on imitation. Harpaz explained that “scientists copy the world; curriculum experts copy the sciences; teachers copy the curricula; and students copy their teachers” (p. 137) in a system that mirrors nature.

The traditional education model has been passed on from generation to generation, often without teachers and students realizing it (Beach & Marshall, 1991), and has been found to be an instructional practice most frequently implemented in today’s classrooms (Alvermann, O’Brien,

& Dillon, 1990; Cazden, 2001; Jetton & Alexander, 2004). For an example specific to the teaching of literature, the subject focus of this study, Beach and Marshall (1991) discussed the uphill struggle that teachers face in breaking out of the traditional mold. In their text *Teaching Literature in the Secondary School*, the authors highlighted that teachers have read the literature typically assigned in their schools (most often as students themselves); they know the questions that “should” be asked on tests, as well as the standard themes to be required in essays. Appropriate answers are expected in response to the carefully selected portion of material presented in class. As Beach and Marshall attested however, teacher knowledge and expectations are built not only upon their training in the subject but also on their personal educational experiences of what is the right information to learn, what is the information students need to know to become educated.

Jetton and Alexander (2004) noted that multiple studies have found that classrooms in which the teachers’ instructional practices controlled content in order to meet specified learning objectives are the most widespread, particularly in middle and high schools. Such findings reinforce the notion that schools remain slow adopters of change and resistant to major reform. Numerous factors have contributed to the prevalence of traditional schooling today, but perhaps the biggest reason in relation to this study has to do with expectations for literacy achievement.

In an educational climate where reading projections and predictors of academic success frequently hinge upon standardized test performance (Hock & Deschler, 2003; International Reading Association [IRA], 1999), attention has focused on what Williams and Morton (2002) called a “a prescriptive, scripted, and typically myopic approach to literacy” (p. 275). This approach has embraced the traditional view of literacy as a process of decoding and encoding

through the reading and writing of words (Gee, 1996). The emphasis has not been on the acquisition of meaning from the text, but rather on the literal translation of text itself.

A distinction in the type of literacy the educational system should strive for was offered by Slater (2004). He suggested that the traditional notion of literacy should not be enough, that teachers should strive to bring students up to a level of “high literacy” (p. 40). Slater defined high literacy as “the educational goal of teaching all students to think, read, and write critically” (p.40). The distinction between types of literacy is rooted in comprehension and analysis of text. Based on the 2002 National Assessment of Education Progress (NAEP) report, Slater found that American schools failed to address students’ high literacy needs.

A team of literacy experts affiliated with the Rand Reading Study Group convened to formulate a research agenda for issues in reading comprehension (Snow, Sweet, Alvermann, Kamil, and Strickland, 2002), a dimension frequently excluded from traditional definitions of literacy but included in Slater’s (2004) view of high literacy. One point at issue was how high-stakes testing affected reading comprehension. The team found that current reading assessments focused on limited tasks, specifically “reading for immediate recall, reading for gist, and reading to further infer or disambiguate word meaning” (Snow, et al., p. 103). In the terms outlined above, the team found that modern assessments test for traditional literacy skills, rather than high literacy skills, which could include such things as a learner’s ability “to modify old or build new problem structures, to use information acquired while reading in the interest of problem solving, to evaluate texts on particular criteria, or to become absorbed in reading and develop affective or aesthetic responses to texts” (p. 103). As a result, classroom literacy instruction has tended to focus more on the traditional notion of literacy because that has been what was rewarded and privileged by high-stakes testing, which has dictated school funds and served as the measure of

achievement (e.g. Casabarro, 2005; Goldberg, 2005; Snow, et al., 2002; Williams & Morton, 2002). The tension between instruction that could influence test scores (a practical reality) versus instruction that could boost comprehension skills (research-endorsed practices) could be viewed as highlighting one of the noteworthy multiple reality conflicts classroom teachers consistently have faced.

Although the type of traditional instruction driven by test scores has seemed more prevalent, all classroom instruction does not have to be teacher-centered. An alternative could be considered the transactional or participatory approach (Jetton & Alexander, 2004). Jetton and Alexander described this approach as one in which “teachers facilitate domain learning by providing opportunities for adolescents to engage in classroom structures that promote peer interaction and increase the likelihood that students will construct knowledge for themselves” (p. 29). This approach seems to be built upon Rosenblatt’s (1994) transactional theory. According to Rosenblatt, transactions are characterized as back-and-forth processes in which meanings are exchanged based on environment and experience. For example, a text was written at a certain time, by a certain person, under certain circumstances. A reader brought to that text a host of experiences and insights of his or her own which shaped how he or she encountered the text, meaning the reader picked up the text at a different time, in a different context than that in which the text was written. The two contexts then met in the reading of text and there was a transaction of meaning. When students then discussed the text in the classroom with peers, the process of transaction supposedly continued beyond the reader and the text, as each student interacted with and questioned the text and their classmates. Meaning had been changed and enhanced as experiences and interactions built upon each other.

The transactional approach is student-centered and runs contrary to traditional notions of what education should be. In this vein, it could be considered by Dewey (1938) as a progressive approach to instruction. Student experience is valued in transactional theory, and it was created in response or reaction to the more traditional banking (Freire, 2003) or transmission model of education. Transactional, student-centered classrooms therefore represent the opposite end of the educational spectrum.

Jetton and Alexander (2004) noted that to adequately serve students a teacher does not have to privilege one approach over the other. Despite the fact that transmission and transactional approaches to instruction operate at different points on the continuum, they can both be implemented effectively for a positive classroom environment. The researchers pointed out that solely using a transmission approach risks disengaging students as they will likely become bored with material and feel uninvolved in the classroom; yet relying strictly on a transactional approach can also hinder student learning. Echoing a point made by Vygotsky (1986), Jetton and Alexander (2004) reinforced the idea that there are times when students need their teacher as a “more knowledgeable other” (p. 30) to help them sift through information and fully process it in order to achieve the deepest possible meaning. There has been a need for both approaches and for balance between them. This point could be considered reminiscent of Bakhtin’s (1981) concept of heteroglossia in that student experience should be valued and they should be allowed to grow and learn as individuals, yet there is a need for a common authority and structure to fully enable the learning process. The classroom has seemed to be a place in need of the ongoing negotiation between centripetal forces (represented by the traditional, transmission approach to instruction) and centrifugal forces (represented by the transactional approach to instruction).

Instead of endorsing a version of the out-of-balance status quo, one which relies heavily on the traditional approach, Lankshear and Knobel (2003) have argued that society should aspire for something better for its schools, stating that “formal education can be so much more, and make far better, more direct, and more enabling connections between what students learn now and what they will do and be later, and this is what we should be struggling for” (p. 206). Yet, in order to become this something more, one is reminded to look carefully at the relationship between the longstanding practices of schools and current student literacy practices both in and out of school to understand why traditional schools cling to their “old” ways (O’Brien & Bauer, 2005).

From the multiple realities perspective (Labbo & Reinking, 1999), the difficult process of letting go of the neat, clean, thoroughly entrenched system of education has been evident, particularly when the suggested replacement, one that values individual literacy experiences, could be something messy and undefined (O’Brien & Bauer, 2005). There has also been a risk that in an attempt to achieve heteroglossia (Bakhtin, 1981), schools could shift too far from the controlling, centripetal force of traditional education to the potential chaos of centrifugal forces (or progressive, retaliatory movements) infiltrating the educational system. Schools have been unwilling to take such a risk without a sense of security.

As such, this literature review explores a possible model for adolescent literacy instruction situated between traditional and progressive school approaches. The argument flows as follows: There is a specific student population (adolescents) with a unique set of literacy issues. To help solve these problems, a different instructional approach (inquiry) could be espoused. But, to implement inquiry approaches effectively, one must mediate the multiple realities of schooling, which include the consequences of high-stakes testing and traditional

assessment measures, as well as time, resource, and knowledge constraints. Technology could be used as an inquiry enabler to overcome such realities, but the integration of technology in the classroom yields its own set of complications. This examination of literature has endeavored to understand the current state and literacy needs of adolescents, as well as how inquiry could offer a unique approach to meet those needs with the realities of today's educational system. The review also indicated that it is necessary to study the effects of an online community as a facilitator for student inquiry, while acknowledging the tension between the traditional and progressive approaches to schooling. The degree of complication versus the benefit of this model should be considered at the root of this review.

Adolescent Literacy

The 2003 NAEP report, *The Nation's Report Card: Reading Highlights 2003* (<http://nces.ed.gov/nationsreportcard/pdf/main2003/2004452.pdf>) found that more than 8 million students in grades 4-12 are reading at below basic levels. Only 40 percent of high school students could read well enough to understand their textbooks (Hock & Deschler, 2003). This number dropped further by grade 12, when only 36 percent of students reached the proficient level (Campbell & Kmiecik, 2004). When Sturtevant and Linek (2004) analyzed the 2002 NAEP results, they noted an interesting distinction between traditional adolescent literacy achievement and high literacy achievement. They found that while 73% of 8th graders could comprehend text with specific factual information, “only 3% could extend or elaborate upon the meaning of the material read, and only 2% could write essays expressing ‘analytical, critical, and/or creative thinking (<http://nces.ed.gov/nationsreportcard/writing/achieveall.asp>)’” (p. 6). These findings offer a starting point to understanding the magnitude of adolescent literacy problems.

Adolescent Literacy Needs

Despite the general betterment of K-3 reading scores on standardized tests and the significant resources pumped into early learning initiatives (Hock & Deschler, 2003), adolescent literacy scores have not improved at a similar rate. According to the International Reading Association's (IRA) position paper on adolescent literacy (Moore, Bean, Birdyshaw, & Rycik, 1999), this oft neglected age group requires reading instruction just as much as students in grades K-3. IRA cited a difference between age groups in the skills needed to acquire literacy however. As Strutevant and Linek (2004) noted, there is a mistaken assumption that once students move into the middle grades they know how to read. Teachers then believe that they can turn their attention to focus on content rather than reading comprehension strategies. The National Council of Teachers of English (NCTE) also challenged the traditional assumption that reading is a skill that requires attention only in the early grades when it stated that "Reading isn't something learned all at once. It's a skill that continues to develop throughout our lives and is one that requires support at all educational levels" (2004, p. 1).

In examining adolescent literacy instruction, Kucer (2005) acknowledged that a change occurs in the abstract types of text adolescents begin to encounter versus the straight-forward, literary and personal narrative texts of early school experiences. Researchers (Snow, et al., 2002) found that not only does the type and complexity of text change dramatically in the adolescent school years, but so does the amount students are expected to read. With such change, the researchers noted that "Not all students who successfully read narrative text cope successfully with this transition" (p. 105). Although adolescents have increased in life experience, vocabulary, and cognitive ability, the help of a teacher is needed to assist in the interpretation of texts (Moore, et al., 1999).

Students have not found this assistance in schools however, largely because teachers have been forced to focus solely on the material of their content areas as a result of school realities, such as testing, leaving teachers with few opportunities to cultivate more authentic thinking and reading comprehension skills (Campbell & Kmiecik, 2004). Jetton & Alexander (2004) summed up the irony of adolescent literacy instruction well when they stated:

“As students progress through school, they are required to learn from printed materials that are often increasingly complex, less personally relevant, and conceptually dense. Paradoxically, just as the linguistic demands of text-based learning are expanding, academic supports for students in the forms of explicit reading instruction are diminishing.” (p. 15)

Motivations for Literacy

In the lives of adolescents, those often misguidedly labeled as “not-yet adults” (Alvermann, 2002), texts appeared to serve two primary purposes: to navigate school lives (Knobel, 2001) and to navigate social lives (Beach & Myers, 2001). Conflicts arose with such negotiations when the limited adolescent literacy instruction imparted on them focused on the phonics and decoding strategies pushed by traditional education advocates as necessary for the acquisition of reading proficiency (Ivey & Baker, 2004). Ivey and Baker (2004) found that such strategies did not adequately serve either of the primary adolescent literacy goals, regardless of their effectiveness in the early grades. Adolescent literacy goals and needs were also left unfulfilled when teachers focus strictly on the content, neglecting to situate its meaning as previously discussed. Students could become frustrated and disengaged as a result.

Adolescent literacy issues have been further complicated when some students who *appeared* to struggle with their literacy skills were simply choosing not to participate in a

literacy of schooling that does not value or recognize their practices and priorities (Knobel, 2001). Moore (2002) noted that in order for adolescents to engage with text, they must have some type of motivation for reading that goes beyond academic success. In a study of the literacy practices of readers and “not-readers” or alliterates (considered those equipped with the skills needed to read, but who choose not to), Strommen and Mates (2004) found that the materials presented in class did not satisfy the needs or interests of not-readers, leading them to tune out. Not-readers described the process of reading as too “tedious,” “slow,” or “boring” to engage their interests (Strommen and Mates, p. 198). Novels seemed particularly long and detailed to the not-reader group, failing to capture their attention. Novels also were criticized for taking too long to get to the point. Additionally, the researchers found that if given the choice to avoid reading altogether, regardless of skill level, not-readers consistently shunned picking up texts. These opinions demonstrated a refusal by many adolescents to acknowledge and participate in the forced construction of literacy present in traditional schools, resulting in a perception of school failure.

Reed, Schallert, Smith, and Woodruff (2004) suspected that such a lack in reading motivation could be attributable to a lack of student control and choice in the material that they read. The researchers noted Ivey and Broaddus’ (2001) study in which students stated that they were often bored or failed to comprehend many of the texts they were assigned to read in class. In their extensive review of literacy research, Reed, et. al (2004) found ample evidence that the students who believed they had greater control over the types of texts they read and writing tasks they engaged in were more motivated to fully participate, therefore they became more invested in the learning process. The researchers recommended that teachers give adolescents choice in reading materials and control over traditional literacy activities whenever possible, but cautioned

that this is not as simple as it sounds. Upon review of an Orange and Horowitz (1999) study, Reed and her colleagues (2004) stated that “Even if teachers want to offer choices among a variety of literacy activities designed to promote motivation, they may not recognize which of these choices actually would be motivating for their adolescent students” (p. 270). Adolescent motivation has been a tricky thing for teachers to gauge because these students comprise such an unpredictable population.

Strutevant and Linek (2004) explored the frustration teachers have experienced with literacy instruction. They noted that adolescent “motivation may also vary tremendously across different types of projects – when hooked on an idea, commitment, or cause, they may work devotedly. But the same individual may, at other times, or for other projects, exhibit total apathy or do only what is necessary to get by” (p. 5). Part of the reason teachers have struggled to identify activities that motivate students likely has been because they may not see connections to students’ lives.

Beach and Myers (2001) found that when adolescents became engaged in literacy practices, they did so as a way to make sense of their lives as social beings through text. Adolescent interactions with text, be they in the text of a novel or the text they “read” on a website or in a video game, helped them to understand the world around them and how they situated themselves within it. In response to a question on the Strommen and Mates survey (2004), one student articulated this positive aspect of reading by saying, “Sometimes it relates to my life too, because you read about someone who has similar problems, and other times you just realize about other people’s problems” (p. 196). Finding such connections and seeing relevance in materials has been shown to be a highly motivating factor in adolescent literacy, but it is not something that teachers can force.

Researchers (Snow, et al., 2002) have noted that students can feel good and gain confidence in their reading abilities when they make connections between the text and their own lives. Comprehension abilities increased and they applied what they read and understood to their experiences as well as to new topics. Snow, et. al (2002) found that good comprehenders take aspects of what is read and use it to judge its “importance and relevance to one’s tasks” (p. 99). Yet, teachers have often neglected to situate school texts in ways that seem relevant to adolescents; therefore significant literacy and learning opportunities have been lost to students in terms of content and of life (O’Brien & Bauer, 2005). O’Brien and Bauer pointed out that it has not been the fault of the teacher necessarily, but rather is associated with the culture of traditional education.

Knobel (2001) viewed this as a type of schooled literacy and culture of neglect that has become one of the contributing factors in student disenfranchisement from formal education. In addition to the textual connections that could be made between assigned readings and student lives, Knobel pointed out that the value of multiple literacy practices in which students engage outside of school have been lost as well. Traditional school cultures place a higher value on test scores and basic skills than on meaning development; therefore the rich outside literacy experiences, in which students often deemed as failing can excel, have become meaningless (Knobel, 2001). As a result, a student’s concept of learning and intelligence becomes skewed. Hinn, Leander, and Bruce (2001) described this adolescent reality by stating, “Being a young person today means having to live in multiple worlds. As they move between home, school, and peer group, adolescents have to recalibrate their sense of what actions are appropriate, what is valued, and what is known” (p. 156). These comments further highlighted the gulf between school values and social values. In one arena an adolescent could be viewed as an expert, such as

an expert gamer, whereas in another realm, the school realm, that same student could be viewed as an academic failure because he or she did not engage in or conform to the traditional school-valued literacy.

Beach and Myers (2001) contended that students navigated their social and institutional worlds through a high level of engagement with language, text, and signs, using their literacy practice to negotiate relationships between these worlds. An interview (Guzzetti, Campbell, Duke, & Irving, 2003) with three “zinesters” (a term that refers to those who create subversive, self-published magazines or e-zines for the purpose of expressing thoughts and ideas in a non-conventional or non-academic format), exemplified this negotiation of what is known and valued in their respective worlds. The zinesters demonstrated that adolescents engage in multiple literacy practices by choice, although they are often in conflict with or in retaliation to the controlling nature of school, and therefore do not fit the notion of traditional literacy. According to the zinesters, students recognized that there is a “right” way to write for school and think about this institutional world. As such, they have gone through the motions in school, engaged in this schooled literacy and saved the rich engagement with text for practices outside of school boundaries in their social worlds. But this separation and negotiation has begun to take its toll on adolescents (Reed, et al., 2004). Motivation has waxed and waned in different areas of life, “particularly those such as schoolwork, which are perceived as imposed by adults” (p.265).

To extend positive, engaging high literacy opportunities to all students, including those who view themselves as academic failures or traditional school outsiders, teachers should pay attention to the ways in which students use alternative literacy practices to shape their identities and attach value to them inside the classroom (Slater, 2004). Reed, et al. (2004) agreed, stating “Perhaps we, as educators and educational researchers, can learn much from taking adolescents’

self-chosen literacy acts more seriously” (p. 252). This idea reflected a belief that by valuing outside literacy practices, students are not the only ones who benefit – teachers do as well, presumably by the creation of a more inclusive, engaging, and highly literate classroom.

To reconcile the needs of adolescents with respect to literacy and the multiple realities of schooling, educational practices should be carefully evaluated. Changes to instruction should have the potential to fit into existing classrooms while also engaging adolescents. Said another way, instructional changes should recognize the realities of traditional schooling that will not go away in the near term and work within those realities to create an environment for learning that engages adolescents and values their practices, rather than merely reacting to the instructional elements that do not work.

The Potential for Inquiry

Knobel (2001) remarked that effective teachers will find ways to “enact meaningful and richly conceived literacies in their classrooms” (p. 410) despite the constraints of traditional schools. Beach and Marshall (1991) pointed out that “students will rarely be able to talk or write about literature unless teachers provide a meaningful structure for their efforts – a structure that allows them freedom at the same time that it points them in potentially rewarding directions” (p.101). Both comments placed the responsibility of engaging students on the teacher. If the body of research on adolescent literacy (e.g. Fairbanks, 1998; Lankshear & Knobel, 2003; Moore, et al., 1999) is to be taken into account by teachers who effectively negotiate multiple realities, by what means can they move beyond traditional textbook learning (Bruce & Bishop, 2002) without crossing into the realm of chaos? An inquiry approach is one option that has seemed well-suited to negotiate the distance between traditional literacy practices and adolescents’ literacy goals (navigating school and social lives). This could be attributed to

propensity for inquiry to encourage learning as a process focused on both the dictates of classroom texts and the students who read them. If viewed through the lens of Bakhtin (1981) such balancing could satisfy the requirements for heteroglossia, assuming the centripetal forces of traditional schooling collide with the centrifugal forces of individual students through the process of inquiry, creating a new meaning out of the jointly created context.

What is Inquiry

Perhaps the best way to describe an inquiry-based instructional approach is to give an example of what it is not. The following passage was taken from Allen's book, *Yellow Brick Roads: Shared and Guided Paths to Independent Reading 4-12* (2000):

When we look at the way teachers and students interact in a typical experience with text, we often find teachers asking lots of questions (often prepared in advance or found in guides) as a way of checking students' understanding or extending the content of the text. These kinds of questions might be called product-oriented. We ask a question, get an answer, and move on. In fact, a student intern in my class recently asked a teacher about text-related discussions, and his advice was "Get in and get out before they have a chance to get off task." If we define our goal as checking for literal-level comprehension, that might be good advice. While some lively discussion may take place during these teaching moments, the discussions and rapid-fire responses often involve only a few students in the class. Further, the questions and answers usually focus on fact or motivation at the literal level. (p. 81)

Though inquiry involves questioning, it is conducted through a process or instructional practice that is very different than the example highlighted above.

According to Wells (1999), inquiry is a “stance toward experiences and ideas – a willingness to wonder, to ask questions, and to seek to understand them by collaborating with others in the attempt to make answers to them” (p. 121). Delandshere (2002) stated that inquiry referred to “an ongoing activity in which one follows certain processes or stages and works from explicit or implicit questions and assumptions about the world and the phenomena being investigated...inquiry does not presume a certain outcome” (p.1477). Then Stripling (2003) defined inquiry as “a way of learning that requires active engagement. The learner identifies what he already knows, asks intriguing questions about what he does not know, investigates the answers, constructs new understandings, and shares those understandings with others” (p.5).

Although there have been a myriad of perspectives on what inquiry is, and therefore an inquiry-based approach to education could be, from Adams and Hamm (2001) or McIntyre and Leroy’s (2003) loose conceptualizations to Beach and Myers (2001) or Stripling’s (2003) step-by-step guidelines of the inquiry process, to Ciardiella (2003) and Fecho’s (2004) somewhere in-between approaches, at its root is comprehension development. According to the experts affiliated with the Rand Reading Study Group (Snow, et al., 2002), successful comprehension of text requires a reader to call upon numerous skills and abilities, while engaging metacognitive and cognitive strategies to eventually derive meaning. Textual comprehension often requires the reader to participate in a multi-tiered yet flexible process to activate the kinds of knowledge necessary for meaning making. Inquiry is one such process.

Taking into account the multiple conceptions of inquiry, two common threads emerged in the literature. First, to inquire is to question, thus questioning text through reading, writing, or speaking is the primary characteristic of any inquiry-based instructional approach. The second is to view the student as learner.

Examining inquiry as a process of questioning, Adams and Hamm (2001) stated that “inquiry cannot exist without curiosity” (p.191) because curiosity leads to the posing of questions. Yet, because of their role in the traditional school system, students rarely have been trained to ask, or for that matter answer, authentic questions or to inquire into text. Students have felt the effect. Allen (2000) explained that because students are conditioned to answer literal-level questions, there has been resistance to and little patience for answering or thinking about process questions. She found that “For older students, often the only point of reading is finding out what happened at the end; therefore their only goal is to get to the end as quickly as possible. Students have even developed strategies for answering end-of-the-chapter questions without reading the text” (p.88). This is possible because the questions most frequently asked have been literal-level and require little thought or analysis on behalf of the reader.

Just as it has been rare for students to answer a thought-provoking questions, it has been perhaps more unusual to ask a student to come up with his or her own authentic questions about a text. As one of Ciardiello’s (2003) students pointed out, “It’s very uncommon to be a student and be able to write [ask] questions instead of answering them” (p. 228). Ciardiello (1998) signaled that discouraging students from asking higher-level questions was a paradox associated with the relationship between student questioning, answering, and learning in schools. By asking authentic questions, students have demonstrated a behavior of wanting to know, thus indicating that they have internalized enough information to seek more in a specific area. Students demonstrating such behavior appeared motivated and capable of reaching a level of high literacy, as Slater (2004) discussed. Traditional schools for the most part have not allowed for this practice however, nor have they acknowledged it as learning, as shown earlier in this review. Instead, schools have seemed more focused on the transmission of knowledge (Freire, 2003).

Delandshere (2002) described the complication by defining knowledge as a fixed outcome. It is separate from individual learning; it is an external entity. She explained further by stating, “In common usage, “to know” is not an active verb. I cannot say “I am knowing” in the same way I would say “I am learning.” We learn and then we know” (p. 1477). From this perspective, one could conclude that students engaged in inquiry or active questioning as a learning process to acquire knowledge. In a sense, inquiry becomes the intermediary between teacher transmission of knowledge and student receipt of knowledge, disrupting such traditional educational approaches as the banking model Freire (2003) critiqued, without allowing individual student experience to fully take over.

To address the second common characteristic or thread across inquiry approaches is to return to the notion of student as a learner. An important distinction made by scholars such as Dewey (1938) and Freire (2003) has been that the student in a traditional approach is not actually a learner, but a receptacle that receives knowledge rather than seeking or engaging with it. To learn via an inquiry approach, as highlighted by the scholars above, a student is required to interact (Beach & Myers, 2001), transact (Rosenblatt, 1994), and interpret (Fairbanks, 2000) texts.

Describing engagement or textual interaction as an essential component in the development of students-learners, Beach and Myers (2001) stated that a “lack of engagement stems from a sense of disconnection between studying language, signs, and texts as intrinsic forms, and how texts and language are used within everyday life to construct meaning” (p. 4). To become engaged and therefore become a learner, it is necessary for a student to see the connection between text and his or her own life. The lack of such a connection has been described previously as a flaw in traditional adolescent literacy approaches.

Rosenblatt's (1994) transaction theory, as previously discussed, can provide a lens through which one could examine how students in inquiry classrooms have engaged and connected with text and then with one another in terms of lived experiences, expanding the relationship of text-to-self to include others as well. Transaction theory thus has become important to some inquiry practitioners because in classrooms "learning [is] always under construction and [is] based on our individual and collective experiences" (Fecho, 2004, p. 46). Transactions perpetuate the learning process, never conceding an end to inquiry (Delandshere, 2002).

Such an educational stance also has Freirian roots, as it was Freire (2003), who advised that "Education must begin with the solution of the student-teacher contradiction, by reconciling the poles of the teacher-student contradiction so that both are simultaneously teachers *and* students" (p. 72). In an inquiry classroom, the students have been given power through the transaction process that was traditionally reserved for the teacher. Because transactions are based on student experiences however, there is limited opportunity for the teacher to transmit information. Therefore, when information is shared and transacted in classrooms, the teacher becomes a student, learning from and transacting with his or her pupils. Sturtevant and Linek (2004) have suggested that the inquiry process is a way for teacher and student to work together by asking and seeking answers to issues of mutual importance.

To examine this dissolution of traditional classroom boundaries another way, the student is inherently removed from the traditional passive role (Dewey, 1938; Freire, 2003) by upsetting the hierarchy through adopting a questioner's stance. As such, Delandshere (2002) contemplated how teacher and student could and should be related by noting that learning has traditionally been viewed as a student activity, whereas inquiry has been more closely associated with

teachers and researchers. Delandshere remarked that “experts inquire to generate knowledge (generative activity), and students have to learn or acquire that knowledge (mimetic activity) to become knowledgeable or expert” (p.1476). Yet she questioned the appropriateness of such roles in the present day when one could see benefits in a blurring of roles.

In a 2002 study, DeLisi found that students demonstrated academic success after assuming the role of teacher and upsetting the hierarchy through inquiry. Results indicated that students developed a deeper understanding of concepts, dissecting what was and was not known when asked to share their thoughts and ideas with others. In doing so, students also opened themselves up to the possibility of contradiction based on others’ transactions with text. Such results suggested that students developed higher level thinking skills when examining materials.

Due to its fluid nature and propensity to question, inquiry could seem like an impossible fit for practice in a traditional education system. If one judged the approach on the values of inquiry, he or she could be led mistakenly to believe that inquiry operates solely as a student-centered centrifugal force, working to destabilize traditional education practices through students’ independent textual experiences. Inquiry builds upon Bakhtin’s (1981) concept of heteroglossia however, which recognized that although individual experiences have meaning, some level of structure is needed to make a system work. Inquiry is no exception.

Inquiry in Practice

Although the nature of inquiry is to continually look within, Myers and Beach (2001) provided some structure for inquiry through a list of six components that could make up the inquiry process. They included:

1. Immersing – entering into the activities of a social world, experiencing the social world as a participant, or observing a social world.

2. Identifying – defining concerns, issues, and dilemmas that arise in a social world, or conflict across multiple social worlds.
3. Contextualizing – explaining how the activities, symbols, and texts used in one or more social worlds produce the components of a social world—purposes, roles, beliefs, and traditions operating in a system.
4. Representing – using symbolic tools to create a text that represents a lived social world or responds to a represented social world.
5. Critiquing – analyzing how a representation of a social world privileges particular values and beliefs; analyzing how particular literacy practices within a social world promote certain meanings while marginalizing other possibilities.
6. Transforming – revising one’s meanings for the components of a social world, changing one’s actions and words within a social world to construct more desirable identities, relationships, and values. (p. 541)

When applied to the practice of teaching in an adolescent English classroom, one could infer the following instructional implications from the six components: Students immerse themselves in text (reading) assigned for class, such as a novel, poem, or a short story. They look for conflicts within the work that could apply in the lives of participants at that time. Students also situate the problem and the text so that concerns are not evaluated in isolation. Then they create some type of response tying their real-life experience to the textual phenomena. They may critique the text and examine the subtext for any hidden meanings, as well as move beyond the literal reading of the text.

Although it is important to point out the various components one could implement in an inquiry classroom, it should not be inferred that inquiry must be formulaic. The Myers and Beach (2001) framework may serve as a guideline for teachers seeking answers for how inquiry should look. Ciardiello (2003) for example, put forth another, less-structured inquiry-approach he referred to as question-finding. Based on Berlyne's (1965) curiosity theory, the teacher selects materials for instruction "that contain some type of discrepancy or anomaly that sets up a puzzling situation" (p. 230) that also works within students' realm of background knowledge. Students then engage in an inquiry process to resolve their puzzlement by detecting its cause, generating and exploring questions that explain the anomaly, and then either resolve their puzzlement based on the answers found in their inquiry, or continue to explore deeper questions related to an alternative hypothesis.

In the frameworks noted above, adolescents could satisfy their needs to navigate school (Knobel, 2001) and social worlds (Beach & Myers, 2001) by examining an assigned piece of literature and relating the text to lived experiences. Yet, it should be noted that a structure is in place. Bakhtin's notion of heteroglossia (1981) appropriately applies to successful inquiry approaches by suggesting that teachers cannot allow students free reign to explore every idea that emerges when encountering a text. As Jetton and Alexander (2004) suggested, there should be a compromise between transmission and transaction for optimal learning to occur. At the same time, students must be free enough to develop meaning and contexts independent of and in conjunction with what others tell them (Rosenblatt, 1994). This push-pull between structure and freedom, or tension between the centripetal and centrifugal forces potentially could enable both community and the individual to foster (Bakhtin, 1981). It is a form of structured-freedom

(Moore, 2002) that “designates a balance among teacher and learner direction” (p. 156). This balance has been linked to the creation of a student’s literate identity.

Images of Inquiry

The concept of inquiry and some potential inquiry structures have been discussed, yet inquiry can likely best be understood through examples of students and practitioners. Feminist activist hooks (1994) described an authentic inquiry experience when she detailed her educational roots. She was taught to think critically, to have her life experiences valued, and to understand that words have power when she attended a segregated school. She seemed to love her early school experiences, despite the limited material resources. Because her school was rich in cultural resources, she said, “Attending school then was sheer joy. I loved being a student. I loved learning. School was the place of ecstasy – pleasure and danger” (p. 3). Yet because she was a black student during the time of desegregation, she was later forced to attend an integrated school where “knowledge was suddenly about information only. It had no relation to how one lived, behaved...we soon learned that obedience, and not a zealous will to learn was what was expected of us” (p.3). Her educational experiences developed in sharp contrast to one another and dramatically influenced her view of the world.

Through the study of her life, hooks made one aware of the threat to authority teachers and society could feel when students, particularly those at the margins, have been taught to question. At the same time, she demonstrated the wonder and possibility, the sheer power and influence that schools can have in shaping a young life. It is a power few adolescents in traditional schools have expressed as evidenced by dearth of research defending traditional instruction.

From a practitioner's perspective, Fecho (2004) described what it was like in to step out of the traditional teacher mold that had defined his career in order to allow the work of theorists such as Rosenblatt and Freire (among others) to guide him in the creation of Small Learning Communities (SLCs) in an inner city high school in Philadelphia. Fecho was an English teacher who found himself not only collaborating with the students in his classroom, but also with teachers from other departments. While the students engaged in inquiry processes in the classroom, the teachers worked to create common themes across the curriculum in order to pull content out of isolation (Dewey, 1938) and make it relevant to students' lives. Students learned how to delve deeply into content across disciplines and engage with material in ways that a traditional curriculum did not allow.

Creating such an environment, particularly carving it out of the construct of a traditional school, caused multiple problems (many described below) for Fecho (2004) and the other teachers in the collaborative, as well as the students. It was a big adjustment for all parties concerned, but one through which Fecho believed disenfranchised adolescent students became re-engaged with school.

Issues with Inquiry

Inquiry has not been an easy approach to implement. Placing students in an environment where they can learn for themselves, learn from one another, and allow the teacher to learn from them within the multiple realities of schooling has presented significant challenges to educators. First, traditional classrooms have failed to inspire collaboration. To overcome this obstacle, McGrath explained in the results of her 2003 study that "You have to set the stage for a community to develop: to design the goals, feedback, and assessments; to establish the tone of the classroom to support community; and to model being part of that community" (p. 43). Her

conclusions echoed Freire (2003) and Dewey's (1938) ideas that the teacher should engage with the students, while not overpowering them. The teacher should be in charge of the community however, and must establish a structure that is strong enough to support it. Although this has not been an easy task in practice compared to the theories presented, the creation of such a defined environment has allowed more room for teachers to negotiate the often grey area between relationships of constraint and cooperation (De Lisi, 2002), another practical issue associated with inquiry.

A teacher/student relationship dictated by constraint (DeLisi, 2002) was representative of Freire's (2003) banking model and Dewey's (1938) assessment of traditional education, while a relationship based solely on cooperation (DeLisi, 2002) could lead to chaos, upsetting the learning continuum. The argument was again related to Bakhtin's (1981) notion of heteroglossia – under which homogeny and hierarchy, or the centralizing and decentralizing forces, must come together to create a frame of reference for meaning construction. Both must occur for students to maximize learning experiences.

In his work tying Piagetian theory to educational practice, DeLisi (2002) explained the necessity of balanced roles in scientific terms. He wrote:

A student's cognitive system is more likely to be fully engaged when: (a) she feels that her learning efforts are respected and valued by teachers and by classmates, (b) she has positive feelings about the learning situation, and (c) the curriculum tasks and problems are developmentally appropriate. If even one of these three elements is missing, imbalances in knowing relationships can occur. (p. 7)

De Lisi underscored the importance of operating within a trusted community for the inquiry process when he commented that “Students will not take the time and effort to think deeply

about a task when they feel disrespected by a teacher or classmates and when genuine efforts at learning are not rewarded” (p. 7). Students also have been hesitant to open up personal experiences without the creation of a trusting environment (Guzzetti, et al., 2003).

The creation of trust can be complicated and intensive when dealing with an entire class of adolescent students. It cannot be rushed or forced. Fecho (2004) revealed the work required of a teacher to maintain the trust needed for open inquiry. In recounting a poetry lesson taught to his students in the spring of their junior year Fecho wrote:

There is was. Out on the floor. I thought the poem to be a celebration. I believed Nikki Giovanni intended it as such. But my students saw it as a put down, a parody. We could either sit and stare open-mouthed at the gap in our perspectives or we could summon up the courage to ask the next question. My students had run smack against a problem of language, and a seemingly innocent poem had left them bewildered, angry, and betrayed...My “safe” poem had heated up in ways both political and personal. And life in my classroom would never be the same. (p.13)

The passage was important because not only did it demonstrate how easy it was for Fecho unwittingly to violate the trust of an established inquiry community, but it also pointed to some other delicate issues teachers face when attaching inquiry to classroom texts.

The exchange underscored the importance of understanding (or attempting to understand) student experience in the classroom, as Dewey (1938) and Rosenblatt (1994) encouraged teachers to do. In this case, experience was particularly important because Fecho was dealing with a marginalized group (primarily African Americans). Because Fecho is not African American he could not fully anticipate the student response, having not experienced life as an African American himself. Fecho had established an inquiry classroom however, and because he

asked questions of his students related to their experiences instead of avoiding the highly-sensitive topic of race, transactions (Rosenblatt, 1994) took place and learning occurred as each side (students and teacher) endeavored to understand one another.

The encounter also showed how a seemingly benign text can become complicated when student ideas and experiences get involved. Not all teachers or administrators are comfortable with bringing such tensions and controversial issues to the forefront, particularly in traditional classrooms. Freire (2003) illuminated how discussions of this nature are a threat to the establishment, the controllers, or the oppressors. By giving voice to those who have been denied it through traditional education, the teacher risks a threat to his or her authority. O'Brien and Bauer (2005) pointed out that "as part of the institution, [teachers] are in control of the curriculum, physical and social space, classroom interaction, participation structures, and the social positioning of themselves and students; they are in charge of the reward system" (p. 127). Opening their classrooms to inquiry could leave teachers feeling vulnerable because they would be required to give up some of this control by recognizing experiences and breaking down traditional teacher-student barriers.

One could catch a glimpse of these complications in practice when the similar, free form approach of the literature-based instruction began to gain ground in the early 1990's. The draw and downfall of literature-based instruction was its promise to enhance students' ability to think, to reason, and to solve problems (Palardy, 1997). Its popularity has waned in recent years because teachers often have felt uncomfortable striking out on their own and have felt unsupported by schools in their efforts to bring something new and inventive to the classroom (Johnston et al., 1998). Instead, scripted or highly suggestive teacher's guides returned, solidifying the traditional structure of school.

McNeil (2000) researched the frustration and apathy some teachers felt in reference to introducing new approaches to learning. She found that many teachers have recognized that most school reforms have short lives, so they have a tendency to wait them out with a “this too shall pass” attitude. They have been more likely to opt for “playing it safe” and sticking with their manuals. With such a feeling of ambivalence, McNeil concluded that many teachers have been unwilling to put forth the effort to commit to a new way of teaching, especially when faced with accountability systems. This point was echoed by Casabarro (2005) and McGhee and Nelson (2005). There has been so much pressure for students to perform up to standards that conforming to traditional modes of instruction has become easier and safer for teachers, instead of putting in the time and effort needed to effectively introduce new practices and strategies that could potentially adversely affect high-stakes test scores.

Creative teachers who may have wanted to adopt inquiry approaches have been discouraged by limitations and frustrating experiences. With time so tight within the school day and content largely dictated and regulated by the school, district, or state due to standardized testing (Casabarro, 2005; Goldberg, 2005; Williams & Morton, 2002), what are teachers to do if they want to attempt some type of inquiry approach?

Technology as a Medium for Inquiry

Bruce (2002) pointed to one to a potential solution by referring to Dewey’s (1938) theory of technology. Dewey stated, “Simply put, technology is characterized as the means for resolving a problematic situation. The method devised to solve one problem becomes knowledge that prepares us for enlarged experiences later” (p. 15). If applied to do more than serve as a replacement for the encyclopedia or the typewriter (Cuban, 2001; Lowther, Ross, & Morrison, 2003), technology applications could alter the traditional, banking model of educating students.

With the explosion of the Internet, an abundance of literacy opportunities have become available to adolescents. Kolko (1998) observed the contradiction that although most online interaction involves language and printed text, requiring literacy skills to turn it into something useful, the Internet has not been viewed as a literacy space. Seeking to challenge that idea, Brindley (2000) noted that ICTs (the technologies used in this study) specifically, are capable of “supporting and promoting” (p. 11) traditional literacy skills as well as extending literacy skills through its dynamic nature. She described ICTs as a medium for access and construction of literacy, which makes it an interesting avenue to explore in terms of adolescent instruction.

Bruce (2002) discussed the promise for ICTs to be used as a medium for exploring adolescent inquiries specific to the self through the creation of text. He argued that because technology can reinvent itself to solve the needs of the community, moving beyond curricular demands, it also can enable social change. In developing this concept, Bruce tapped on a much larger issue, as is true for most inquiries. Technology, particularly ICTs like online discussion groups, chat and instant messenger programs (and to a lesser extent, email, blogs, zines, and personal webpages), could enable students to have a voice in shaping their identities through the text they write and share. In using ICTs in this way, students are using textual inquiry to continually transact and develop their own ideas. The traditional classroom typically has closed off this space (Lankshear & Knobel, 2003) and students often have been left feeling stuck with labels and social constrictions that do not fit who they really are or reflect how they see the world. By inquiring into a text through an ICT however, students could have the opportunity delve deeply into and transact with text, engaging in a meaning making process while also developing a new understanding of themselves, creating a persona that more accurately conveys their self-selected identity (Lankshear & Knobel, 2003).

One of the advantages of using the Internet for classroom communications has been that the traditional school literacy practices (Knobel, 2001) that determined one's social or academic relevance do not apply (Lankshear & Knobel, 2003). Cyberspace recognizes all people and does not identify them or judge them based on how they "speak" or what social group affiliation. It also fails to recognize one's gender, ethnicity, race, or any other category used for marginalization. As such, Lankshear and Knobel found that students could escape the labels they had been assigned. It would be up to the adolescents themselves to decide what they wanted to reveal and how they wanted to be seen. The researchers concluded that students could therefore find ways to cross social boundaries in order to meet human needs, particularly in terms of attention, without violating the rights of others. By offering students some freedom to negotiate their positions in social worlds, it could be argued that strain on students is reduced; therefore they could potentially be more open create a new identity for engagement in their school world.

Kim and Kamil (2004) pointed out that engaging students in dialogue through technology can draw out students who may be afraid to speak up in class. By doing so, a variety of alternative viewpoints can be made available to the class. The researchers also found another benefit specifically tying social interactions to adolescent literacy development. They stated:

Computers give adolescents opportunities to develop literacy skills through collaborative work and social interactions with each other. Computer-based communication, such as e-mail or chat rooms, places expectations on participants to respond in written formats to convey meaning accurately and effectively. Without the benefit of intonation, gestures, and facial expressions to help communicate the speaker's intent in spoken language, written communication relies solely on the use of words and symbols, such as

punctuation, smiley faces, and familiar computer jargon, to convey emotion and intent.
(p. 358)

Such online interactions not only set expectations for clear communication of meaning, but they also could allow students some freedom from the time and space constraints of face-to-face dialogue. As a result, socially challenged adolescents could formulate thoughtful online textual responses without the fear of being laughed at or misunderstood.

In his study of technology integrations in two Silicon Valley high schools, Cuban (2001) noted another social benefit of technology integrations. There were some students under observation whose school lives changed with increased technology usage. He deemed these students “open-door” students because “their computer competence enhanced their desire to do well in school and hence opened doors to learning” (p.91). Although there was a change in the motivation to learn and do well in school for these students, of primary consideration was a shift in their social identity that could be attributed to their aptitude with technology. Open-door students helped students and teachers, as well as the technical support staff on many occasions, with technology questions. They became experts and earned the respect of their teachers and peers, moving up in the social hierarchy of the school, a motivating factor that caused them to invest more in their own educational experience. Although the group of open-door students involved in Cuban’s study was relatively small, it is important because a group of students who were largely disenfranchised became active participants in their school community.

It is essential to point out however that ICTs should not be used in classrooms just because they are “possible and available” (Reed, et al., 2004, p. 271). The researchers encouraged teachers to ask why and how to use new technologies in the classroom, as well as

what students would gain from online interaction before attempting to create a usage plan for technology. In the 2004 chapter “Motivated Reader, Engaged Writer: The Role of Motivation in the Literate Acts of Adolescents,” Reed and her colleagues concluded that such literacy environments “must be designed thoughtfully to enhance student motivations to become independent researchers and writers” (p. 271). Cuban (2001) reinforced this point throughout his work, giving examples of creative instructional uses for technology while balancing such anecdotes with other data that demonstrated the failure to use technology in a new way (i.e. for a purpose other than word processing, which could be viewed as a more efficient version of paper and pencil). When applying new technology to textual inquiry, teachers could have the capacity to do as Reed et. al (2004) suggested, to use technology to increase motivation in learning experiences.

Applying ICTs to Textual Inquiry

At the same time that technology can create spaces for individuals to explore themselves and the world around them, ICTs such as discussion groups and chat technologies could allow students to transact with others as well, building upon each other’s comments, giving rise to new constructions of meaning. Students in online environments engage in dialogue and then are changed from the experience of it. Online environments could be a new medium for transactional instruction (Jetton & Alexander, 2004; Rosenblatt, 1994). Beach and Lundell (1998) discussed specifically how students could use chat technologies, similar to AOL instant messenger (IM) or yahoo! messenger, to collaborate in real-time through computers. By taking part in online communications, students learned “writing and reading as social strategies through joint participation in computer-mediated communication (CMC) exchange” (p. 93), and they did so in a new type of environment. Reed, et al. (2004) found these types of communication to be

particularly interesting because they are essentially real-time, written discussions that possess characteristics of the traditional classroom but that have manifested in a different way.

Online communications could be active and full of engagement with other students, unlike traditional classroom writing activities that are more isolated. Such characteristics make an ICT like instant messenger particularly appealing for an inquiry classroom because of the co-construction of written text and meaning through textual interaction. Beach and Lundell (1998) described the relationship mediated through the computer as one in which “students mutually construct a shared intersubjective perspective that transcends each of their own individual perspectives” (p. 96).

Teachers could use this co-construction of meaning to their advantage to engage students in active textual inquiry. Suppose for example that students were reading Harper Lee’s *To Kill a Mockingbird* in class, as were the participants in my study. A teacher theoretically could take students to the computer lab and pose a question related to concepts of justice or issues of race relations as exhibited through the rape trial. Students could then log-in to an instant messaging program (there are many approved for school use) and discuss their interpretations of the text, relating them to the question. Additionally, the teacher could ask students to construct alternative scenarios for the book. At the end of the class period, chat transcripts could be printed out and given to the teacher as written documentation of their collaborative alternatives.

An activity like this could have a profound effect on students. First, students would be asked to communicate through a medium relevant to their social lives. Over 70% of the students in the Pew Internet & American Life Project’s 2001 survey on teenagers’ online lives (Lenhart, Rainie & Lewis, 2001) responded that they regularly engaged in instant messaging practices, indicating instant messaging is an activity already present and accepted in adolescents’ lives.

Second, as Beach and Lundell (1998) found, students constantly would be focused on the reading and writing of text, making instant messaging a tool for active literacy. In order to maintain the focus, students are required to negotiate and interpret meanings “on the fly” in order to keep up with the conversation. And finally because it is an active engagement, inquiry could be conducted in a seemingly painless way. Issue exploration simply would become part of the dialogue, particularly if the teacher selected a question or problem that could be related to students’ own lived experiences.

Two logistical advantages have also emerged related to use of ICTs for collaboration. One is time (DeLisi, 2002). Since students can access technology outside the classroom, collaboration could take place outside of school hours, freeing up class time and allowing students to spend time discussing text when it is convenient. The other advantage ICTs offer classrooms would be freedom of space (Leander, 2002). Leander explained that technology can break down the space boundaries that often constrain student activities. Physical boundaries, such as the classroom, therefore no longer have to dictate how or where literacy practices take shape. Students do not have to be together in the same place to communicate. As a result of the dissolution of physical boundaries, Leander noted that students’ online and offline literacy practices and identities began to merge, particularly when students had a say in constructing their own identities. These are carried over into the school world.

From this perspective, technology could serve as a logical means for solving a problem, effectively alleviating some strains of inquiry approaches to learning. Those teachers who successfully and uniquely integrate technology with their curriculum could have the capacity to create communities (McGrath, 2003) and collaboratories (Lunsford & Bruce, 2001) to stimulate

thinking, which could lead to knowledge (Delandshere, 2002), as well as valuing students' experiences (Dewey, 1938; Rosenblatt, 1994) and differences (Bruce & Bishop, 2002).

Student Motivation for Using ICTs

As previously mentioned, nearly every adolescent literacy research study mentions motivation as a key to any successful practice. ICTs hold particular promise for capturing student attention (Lankshear & Knobel, 2003) and motivating them to participate in class activities because they can make use of both situational and individual interest (Jetton & Alexander, 2004). Situational interest is an important motivating factor because it deals with environmental conditions. Jetton and Alexander noted that students failed to engage when they were placed in boring or bland learning environments. By creating an active new learning environment in cyberspace students may be likely to feel more stimulated and to become more engaged in the literacy activity. This assertion was validated by Reed, et al. (2004), who found that a number of teachers and researchers reported that "students' motivation and engagement with content are enhanced during electronic discussions" (p. 272).

ICTs are also capable of providing a mechanism for securing individual attention, which Jetton and Alexander (2004) claim is even more enduring than situational interest. By using the Internet, a domain in which adolescents already choose to spend a significant amount of their free time (e.g. Lankshear & Knobel, 2003), teachers can utilize ICTs as a means of conducting student-centered, participatory instruction, even within a more traditional classroom. As Jetton and Alexander (2004) stated, "The teacher concerned with students' text-based learning not only sparks their interest and arouses their curiosity but also makes the lesson personally relevant by connecting to the interests and concerns students bring into the classroom" (p. 23). Looking specifically at IMing and online communication exchanges, Reed, et al. (2004) found that

adolescents who engaged with ICTs were “highly motivated” and “fully involved in literacy activities” (p. 252). The students read and wrote extensively online, even though such activities might not be valued as literacy activities by more traditionally- minded parents and teachers. Such findings reinforced the idea that ICTs could be used to capitalize on students’ situational and individual interests.

Technology Adoption Hurdles

While ICT usage may sound promising, there have been some noteworthy obstacles to its adoption in the classroom. If one examined the potential deterrents to technology integration in schools by looking at the big picture first, the digital divide could remain a question in terms of its effect. Kuttan and Peters (2003) defined the digital divide as “the gaps in technology, access to technology (specifically the Internet), education, and training between and within specific populations” (p. 3). It has been a term as enmeshed with various opportunities as education itself. While the divide was acknowledged as quite wide in the mid-1990’s (2003), its affect on students has appeared questionable in schools today.

Mossberger, Tolbert, and Stansberry (2003) found evidence through their own research and other studies that the digital divide encompassed economics, gender, race, and ethnicity. Additionally, they determined that most people associated the divide with various issues of access. Those opposed to technology integration in the school curriculum have argued that disadvantaged and minority students could be pushed further to the margins if technology was adopted on a wide scale for classroom use.

According to information from the Department of Education (2002) however, approximately 78 percent of secondary schools allowed students access to computers either before or after school. Kim and Kamil (2004) speculated that as the number of computers in

schools continues to increase, and as the availability to use those computers outside of school hours increases, there could be potential to compensate for at least some of the negative effects socio-economic status and gender seem to have on student technology usage. They believed that further acceptance and user comfort with communications technologies could be advanced by providing those students without home Internet access free access to computers through libraries, after-school programs, and community programs.

Additional research (e.g. Bruce, 2002, De Lisi, 2002, Hughes & Ooms, 2004,) has suggested that communities are close enough to begin doing more with technology without penalizing students who do not have home computer or Internet access. According to the Pew Internet & American Life Project's (2001) survey on teenagers' online lives, approximately 17 million adolescents age 12-17 use the Internet, representing 73% of the teenage population. Of those surveyed, 94% of adolescents with some online access reported using the Internet for school research. As Lowther, Ross and Morrison (2003) found however, the key factor in learning with technology was not whether or not students and classes had computers, but rather how the computers were used. In a study by Windschitl and Sahl (2002), teachers failed to use technology to alter teacher-centered approaches, even when all students were provided with computers.

Mossberger, Tolbert, and Stansberry (2003) found that as time has moved on and computer proliferation increased, Internet access has increased across all groups and that the gender gap has diminished dramatically, validating contentions that circumstances have improved enough across the board to begin some type of meaningful implementation of technology in the classroom without harming specific student populations. What is perhaps most relevant in terms of how the digital divide affects students in schools could be explained by

Warchauer's work (2003). He found that "the presence or absence of the computing device is only a small part of the broader context that shapes how people can actually use ICT in their lives...it accomplishes little to have a computer if you don't know how to use it" (p. 32).

Cuban's (2001) work took this point a step further. After spending time in school systems with rich technology resources and users (teachers and students alike) who outside of school boundaries could be described as technology savvy, he found that adoption of technology within schools still was not happening. Even though these users had a thorough understanding of technology, there was a lack of interest, motivation, or knowledge of how to apply it specifically to the classroom.

It seems that part of the problem of adoption could be linked to teachers' attitudes towards technology usage, which might lack imagination. In his introduction to a piece by Myers and Beach (2001), Bruce made an interesting point. He stated "The power of technology is generated within our cultural uses of these tools and not simply determined by the nature of the tools themselves" (p. 706). Technology could be what a user makes of it and if it is simply used as a more efficient, powerful replacement for paper and pencil (Lunsford & Bruce, 2001) its capabilities will be limited in the classroom.

As a result, many students have been turned off by the lack of novelty of technology usage in schools according to the Pew report (Pew Internet & American Life Project, 2001). The researchers found that school uses of the Internet were boring, particularly compared to their personal uses. The report contended however that if teachers could come up with more interesting and engaging uses of technology in the classroom, their attitudes toward school and learning would significantly improve. Inquiry could prove to be an approach that could alter such attitudes.

Another potential adoption hurdle was expressed through hooks' (1991) experiences in oppressed learning environments, as well as Freire's (2003) characterization of oppressors. Freire explained that, "Conditioned by the experience of oppressing others, any situation other than their former seems to them like oppression" (p. 57). Similar to the threat of inquiry, teachers, administrators, and everyone on the chain of command in a traditional system could sense a threat to their authority when new methods, particularly those that could lend a voice to marginalized populations, are implemented. The oppressors fear becoming oppressed themselves (2003).

King and O'Brien (2002) painted a picture of today's school culture wherein the oppressors (advocates of traditional schooling) reign. They wrote:

Information is best understood as a limited commodity. Curriculum coordinators and teachers select, define, delimit, shape, and package the most important information for the moment, for the semester, for the academic year, and for 'learning' tracks that span years. In schools, print predominates. The canonical texts are situated alongside limited forms of alternative print texts, supplemented with a limited cycling of visual media, and used to anchor the curriculum. In addition to this tightly controlled representation of the available information, teachers regulate not only the kinds of content but the kinds of thinking about that content that are acceptable. (p. 41)

In such a school culture, students learn for the school's sake (Lankshear & Knobel, 2003), rather than for their own. Instead of learning about topics that interest them, topics that could apply to life beyond school boundaries, students have been forced to learn what the authority deems they should. They have decoded and encoded, doing what was required by their teachers through the banking model. Such activities have not allowed room for technology to be

used in a purposeful way because of its capacity to allow students to step out of school boundaries.

Yet, meaningful technology adoption has remained limited even in schools ready and excited to try new technology approaches. The reason has often been attributed to individual teacher comfort level. Studies (e.g. Hughes & Ooms, 2004, Lankshear & Knobel, 2003, McGrath, 2003) have suggested that teachers are not comfortable diving into a realm that their students know better than they do. Many expressed that they have not had ample professional development training on productive technology uses (Hughes & Ooms, 2004), while others felt like outsiders trying to take on the insider status (Lankshear & Knobel, 2003) of their students.

Cuban (2001) suggested that although teachers do have the ultimate say about what goes on in their classroom beyond the basic requirements (they make the decisions on how to meet those requirements), lack of technology adoption should not be blamed solely on them. When technology purchasing decisions for schools were made, the teachers he studied were not involved. They were not asked how they could use the systems or trained on the best ways to integrate technology with their lesson plans. Without providing input, receiving support, or being trained on usage expectations, few teachers decided to make the effort to change their existing practices.

Cuban (2001) also pointed out that historically speaking, teachers are not adverse to change; they are simply more comfortable with incremental changes than systematic, imposed ones. He cited the length of time it took for teachers to accept such technological innovations of the past as the overhead projector and videocassette recorders as examples. Cuban explained further saying:

Over the years, then, many teachers have come to embrace some version of innovation even to the point of teaching very differently from the ways they did before. The incremental process of adopting innovations to the point of reaching a critical mass of teachers, however, had often taken decades rather than a few months or years. Moreover, classroom implementation varied greatly from school to school and from teacher to teacher, because teacher beliefs, community expectations, and structures of age-graded schools, then and now, have been slow to change. (p. 154)

Cuban hinted at some of the multiple realities at play in schools that could inhibit teacher adoption of technology, pointing again at how every classroom and every teacher is different. He also reiterated the point that has been a criticism of traditional schools – change takes time. Without overcoming the realistic hurdles outlined above however stimulating uses of technology in the classroom, such as those that encourage inquiry, are not likely to occur in the near term unless teachers and students become motivated to try new solutions.

Potential Solutions

To tackle one objection to technology integration in schools, lack of training, McGrath (2003) made a persuasive argument. She relayed how teachers in her study were given technology instruction in the very basics – a few commands and hard skills. Teachers were armed with handouts and knowledge of the help menus and sent to figure the rest out on their own or by working with others. Instead of getting frustrated, giving in to their initial resentment, and quitting, the teachers took the inquiry-based approach into their classrooms. They began to rely on their students for help and they relinquished some control. This was an excellent example of taking Barth's (2001) advice that “teachers and students go hand in hand as learners – or they don't go at all” (p. 23). If the teachers had not allowed themselves to become students, and the

students did not step into the role of teachers, technology and inquiry would not have entered the classroom and this transaction would not have occurred.

Overcoming outsider status (Lankshear & Knobel, 2003), at least to the degree of enabling people to use technology to open doors in the classroom, has been a bigger issue defined by school culture. As Lankshear and Knobel explained:

The test for teachers is not so much whether the computer can do the job. Rather, it is about the extent to which the practice *includes* the sensibilities of insiders (in this case, ‘savvy’ learners). This is not easy, and is always confounded by prevailing views that teachers, schools, adults, and systems ‘know what is best’...this is ‘outsider’ ideology perpetuated in the interests of outsiders. (p. 69)

Freire’s (2003) notion of the student-teacher contradiction was re-introduced. The roles are entrenched, and therefore are not easy to resolve. O’Brien and Bauer (2005) noted that educators need to acknowledge that change, particularly related to ideas of text and literacy practices, is difficult within traditional systems. They advised that “changing school practices is bridging the new with the old rather than a revolution” (p. 130). They encouraged those seeking change, or “the new insiders” (p. 130), to recognize the existing system and work within it to create change instead of striking out against it. While this appears to be a daunting task, Lankshear and Knobel (2003) believe it can be done if teachers are willing to become learners and give up some power to students. If the gap between traditional and progressive approaches to literacy instruction can be reconciled, technology could act as useful tool in alleviating the strain of inquiry approaches (Bruce & Bishop, 2002).

Summary

Examining the instructional practices prevalent in today’s adolescent classrooms, most adhere to the more teacher-centered, transmission approaches to instruction (Jetton & Alexander,

2004), which further solidify traditional notions of literacy (Gee, 1996). Slater (2004) argued however that such educational practices and a limited definition of literacy do a disservice to adolescents. Instead of focusing instructional and assessment energy on a process that excludes textual comprehension (Snow, et al., 2002), schools should adopt a concept of high literacy (Slater, 2004) that pushes students to apply critical thinking skills to their reading and writing. Without adopting a broader definition of literacy, the unique population of adolescents (e.g. Moore, 1999; Sturtevant & Linek, 2002) could miss out developmentally appropriate opportunities to explore a variety of authentic learning and literacy opportunities in the (Davidson & Koppenhaver, 1993). As Davidson and Koppenhaver stated, it could be “difficult, if not impossible, to attain this learning at a later point in life” (p. 3).

In order to step out of the traditional, teacher-centered approach to learning and more specifically, literacy, research suggested that inquiry approaches could be well-suited to meet the needs of adolescents. Inquiry encourages student discussion and questioning of text, while engaging them in a meaning-making process that has some structure. Although inquiry places value on student experience, the teacher has a role to play in creating that structure. An inquiry-based approach appears to satisfy the instructional goals advocated by Davidson and Koppenhaver (1993), who asserted:

If literacy is the complex, dynamic, interactive, and developmental process of making meaning with text, the structure of instructional activities should proceed around this assumption. Such a learning environment will, by necessity, focus on reading and writing as meaningful processes, will show an understanding of the process of the learner, and will demonstrate the dynamic interaction among various literacy skills. These are the

very kinds of practices and approaches that have been validated to be the most effective.
(p.17)

At the same time, teachers and administrators face the multiple realities that there is not an unlimited amount of time for instruction, there are standards for which students must be held accountable, and specific, measurable content must be covered so pressure exists to control learning activities. To offset some of the demands and tensions placed on teachers, and to help create some balance between a teacher-centered and a student-centered classroom, technology potentially could offer a means to explore text in ways that attend to some of the values often neglected in schools. ICTs specifically could generate opportunities to construct meaning through inquiry and expand the notion of adolescent literacy, yet they come with their own host of issues in implementation, such as student access and creative teacher adoption.

In order to know if ICTs provide an option worth exploring in the classroom, more research on the practical implications of an inquiry and technology integration must be performed. To that end, my study endeavored to test a hypothesis in a real-world setting regarding the effectiveness of ICTs to assist in stimulating student inquiry.

CHAPTER 3

FROM CONCEPT TO REALITY

Nothing dulls the mind as thoroughly as a sequence of familiar notions. Then comes the story. It should be interesting and comprehensible, and it should have some unusual twists. I avoid “systematic” analyses: the elements hang together beautifully, but the argument itself is from outer space, as it were, unless it is connected with the lives and interests of special groups. Of course, it is already so connected, otherwise it would not be understood, but the connection is concealed, which means that strictly speaking, a “systematic” analysis is a fraud. So why not avoid the fraud by using stories right away?

-- Paul Feyerabend, 1999, p. vii

Introduction

In assessing instructional practices for adolescent literacy, the literature review indicated a need to stimulate student interest in text (e.g. Moore, 2002), activate questioning skills (e.g. Ciardiello, 2003), and move beyond traditional literacy (e.g. Gee, 1996, Slater, 2004). It was determined that to be successful, instructional practices should be acceptable within the realities of school structures; for example new practices should not detract time from away from the curriculum (Campbell & Kmiecik, 2004; Goldberg, 2005) or upset student performance on high-stakes tests (Casabarro, 2005; McGhee & Nelson, 2005). Other factors to be considered when espousing new instructional methods included familiarizing teachers with new practices and the reasons for adopting them (Hughes & Ooms, 2004; Lankshear & Knobel, 2003; McGrath, 2003)

and creating a structure for learning that is not restrictive or threatening (DeLisi, 2002; Fecho, 2004). Therefore, a specific learning engagement utilizing an inquiry-through-technology approach to instruction was tested in this study in an effort to gauge the practicality and effectiveness such an integration in everyday practice.

In designing a study to evaluate the use of ICTs in a student-driven online community devoted to textual inquiry, the following questions were put forth:

- Could technology act as an enabler for student inquiry into literature?
- Did the use of ICTs as mediums for student inquiry positively affect student relationships with school texts?
- Could the use of ICTs in the evaluation of literature foster student inquiry as a process for meaning cultivation, moving them beyond literal translations of text to develop high literacy skills?
- How was student performance on traditionally graded work affected by the use of ICTs for inquiry?

An experiment within a ninth grade English classroom was then implemented as an inquiry into these questions.

Research Design

Initial Proposed Design

A ten week study was designed to evaluate ninth grade adolescent experiences with literature. The initial design was a matched pairs, block experiment for one teacher's regular English students. It would span the duration of two literature units. The total number of students to be affected, if one assumed full participation as part of a regular class assignment, would be approximately 100 students.

Females within each class period would be randomly placed in a pair, one assigned membership in group one and the other assigned to group two. Males would be grouped the same way, as matched pairs, randomly assigned and placed in group one or group two. Group one would comprise the initial experimental or treatment group, while the group two would be placed in the first control group. Each of the four classes would act as its own block, with its own group one and two, so that results could consider potential differences in classroom dynamics in addition to gender differences.

Each member of the respective group ones (the first experimental group) was to receive a unique user name and password in order to access a secure online community for the purpose of discussing and inquiring into assigned readings. Within the online community, each member would have access to discussion boards, chat rooms, and email functionality in order to communicate with others within their block (or class). Each block would operate its own discussion boards and chat rooms with no option to email across blocks. The blocks would be separated for the purpose of building upon established classroom trust and extending it to create a safe space online.

Students in group one would be asked to forego traditional class assignments, aside from assigned readings, and instead to exchange thoughts and ideas about the literature through the online community. Initially students would respond to open but teacher-directed questions, such as which character stands out most/is most relatable to you and why? Who do you most resemble? Share your description of Boo Radley and what led you to create it?, questions posed by me to encourage early discussions. After students got used to the forum and the initial inquiry process, these directed questions would cease and students would take full control of the discussion boards.

Experimental group (group one) students would receive homework credit according to a participation rubric rather than having responses graded for content and grammar. Full participation in class discussions would be expected and all students would be required to complete the end-of-unit assessment. The control group (group two) would perform the standard unit homework activities with no changes in routine. Upon conclusion of the first literature unit, students from group one would shift to the control group, while group two would become the experimental group for the subsequent literature unit and the process would repeat itself.

To reduce potential issues of teacher bias, the teacher would choose between two participation options. She could decline to know students' group affiliation. As such, she would hold all written work for grading until the end of the second literature unit (with the exception of the end of unit assessments that would require universal participation). Group affiliation then could not influence the teacher's grading practices.

A second option for eliminating teacher bias would allow students to submit written work to me electronically. Once I received assignments, written work would be given to a team of independent graders comprised of other graduate students not affiliated with this study. Work would be evaluated according to the classroom teacher's rubric. Reliability testing with the independent graders would be done in advance to ensure that student performance was consistently gauged.

Rejection of Initial Design

The design outlined above was proposed to the participating teacher, at which time the multiple realities of schooling intervened. While conceptually the teacher agreed with the study and was interested in what could be learned from it, practically this design would not work for her classroom. The ninth graders had recently taken a formal writing assessment. Scores were

well below average. Students would be tested again within weeks so there was limited time to focus on the improvement of writing abilities. Although the proposed study required significant writing by students, the informal nature and casual discourse of online discussions and chat could potentially hinder rather than help the students improve scores on the required, more traditional assessment while also detracting time from formal writing practice.

Additionally, the teacher polled students in the four regular English classes to determine how many students had access to the Internet at home. From her student population, 20 out of 101 students, or 20% of her students, would not have access to the resources needed to complete class assignments from home. Thinking of other access options, the teacher explained that there was one computer lab on the school's campus, but it was often booked for weeks in advance by teachers in the upper grades, leaving her students with limited access to machines on school grounds. The public library and local college library, both free and open to the public, would be options for students without home access. These students would have to rely on others to drive them to and from the library however due to lack of a public transportation system, further decreasing the possibility that these students would complete online work at the level of classmates with home access.

Another concern with the initially proposed research design was a cultural consideration. At least three students in regular English classes did not have parental permission to use the Internet at school due to religious or cultural reasons. Access within school boundaries, despite controls set up on the campus computers and teacher monitoring, was denied to these students. Their parents reportedly viewed the Internet as a vehicle for connecting the students to a world that was inappropriate for them. These students were denied use of the Internet in their own homes, regardless of the family's connectivity situation. As a result, this subgroup of students

would not be allowed to participate in a class assignment based on their religious or cultural views.

With these very serious concerns, the teacher could not agree to proceed with the proposed design. She believed the study in this form could have potentially detrimental consequences to several students. Because these concerns were likely not isolated to this particular school, an alternate, less controlled design was agreed upon that could factor in the multiple realities described.

Accepted Design

Instead of applying the treatment (access to the online community) to all students as part of their curriculum, students in all classes were offered the chance to participate in the study as extra credit for their course work. High motivation for participation was assumed because approximately seven students out of each class, with a class average of 21 students, were receiving failing grades. By making study participation a form of extra credit, those without ready access to the Internet and those who wanted extra credit but did not want to participate in the study were offered an alternative extra credit assignment of the same point value by the teacher.

Participating students were expected to converse openly about their experiences with the assigned book, voicing both positive and negative opinions. They were asked to pose questions to other students and engage with others in a dialogue, writing about whatever resonated with them from the text and why, relying on teacher-directed questions only as a starting point. Grammar, punctuation, and discourse were not to be evaluated for credit. The student goal was to exchange ideas in whatever form the students cared to express them.

An extra credit point scale for participation in the study was determined by the teacher. Students received ten points for minimal participation (defined as one post or chat engagement every week of the literature unit), up to twenty points, or the equivalent of one homework assignment, if students posted more regularly (defined as three or more times a week). Students could also earn extra points by contributing in-depth, thoughtful postings (writing about topics beyond the literal translation of the text or making connections to the world outside of the text). I assigned point values to participating students based upon activity level and a content analysis of postings, and reported them to the teacher at the conclusion of each literature unit because the teacher did not have access to the community.

Fulfilling Goals for Literacy & Technology Integration

With respect to the five goals for integrating technology and literacy instruction (Labbo & Reinking, 1999), this research design sought to satisfy them by focusing on how students engaged with school texts outside of the physical boundaries of school. Specifically, the study evaluated the nature of students' online interactions as a means of exploring and inquiring into literature. Returning to Labbo and Reinking's (1999) five goals, the design of this study fulfilled them in the following ways:

1. New digital technologies should be available for literacy instruction: A secure Web portal was designed specifically for a population of adolescent English students who had not been asked previously to use technology for school assignments (with the exception of typing papers). In order to make the transition to an electronic medium as easy as possible, the portal's interface was designed to be simple to navigate in order for students to concentrate on communications about literature rather than learning how the technology functioned.

2. New digital technologies should be used to enhance the goals of conventional literacy instruction: The online community created through the Web portal offered a new means for students to engage with text. Previously students spent forty-eight minutes in English class a day, went home to do their homework alone, and came back to hand it in on the due date. The online community encouraged students to communicate about text outside of the traditional isolated boundaries. The additional exposure to texts, the writing of messages about the literature and the reading of others' messages was designed to bolster existing literacy instructional practices.

3. New technologies should be used to positively transform literacy instruction: The study was designed to utilize existing adolescent literacy practices, such as engagement with ICTs, for the purpose of exploring school literature. The study sought to repurpose some of students' online time in order to situate school texts in a new way that potentially could positively transform traditional literacy instruction.

4. New technologies should be used to prepare students for the literacy of the future: Because students will one day leave the school environment, it is believed that they should be equipped with skills to succeed in life, both as functioning members of the workforce and of society. The study was designed to extend students' technology exposure beyond that of a social tool so that they could meet both of these goals. Students could learn how to use technology to evaluate and communicate ideas and details. The technical skills potentially could help students in the workforce, while the inquiry and communications skills acquired through online exchanges also could assist students in the workforce and beyond.

5. New technologies should be used to empower students: As discussed in the previous chapter, cyberspace has the capacity to treat all students equally because it does not recognize pre-conceived societal conceptions of identity. Nonetheless, student identities were protected in this study by assigning a unique user name and password to each student. As a result, participants did not know with whom they were interacting. The purpose was to allow new identities to take shape online, identities that were largely of the individual student's creation. The online community offered students a chance to be who they wanted to be, rather than who they were perceived to be in the traditional school space. This liberty had the potential to empower students.

Participation

To recruit participants, I traveled to the site of research and spent three days at the school. I addressed each of the four regular English classes, informing them of the study and demonstrating the functionality of the online community. After reviewing the study goals and procedures and sharing examples of postings from discussion boards, students were given parental consent and minor assent forms, as well as a handbook for usage. The details of each consent form were explained to the students. Through the forms, I asked for the right to observe student participation in the online community as well as for students to complete a survey once they finished their online interactions. Additionally, students granted me access to their traditional course work for purposes of comparison and evaluation.

The English teacher's role in this study was one of outside facilitator instead of active participant; therefore I garnered her permission to participate in interviews that would provide background information on the students, including insider knowledge of their school and home environments. The teacher also agreed to share the student work of consenting participants. She

was not given access to the online community, however, for two reasons. First, as part of the research agreement, her participation in the study would require minimal interruption of her class and schedule, and few demands on her outside time. Second, in learning about existing tensions between the teacher and her students, we agreed that students might be more open in discussions if they felt they were writing in a space safe from the eyes of the teacher. This was not intended to be a slight on the specific teacher, but rather in consideration of the relationships between the student and faculty populations within this particular school. The teacher was given the option of reviewing the study before its release.

Upon receiving the final consent forms, 36 students (also 36%) of the possible student population of 101 agreed to participate in the study. I reviewed the class breakdowns in terms of the number of participants per class period and found that two groups naturally emerged for discussion groups instead of the initially proposed four class blocks. Group one, the first experimental group, was comprised of 17 students from a combination of periods three and seven. The control group consisted of 19 from periods one and four. The study would follow these students through a five-week literature unit on Harper Lee's novel *To Kill a Mockingbird*. After the school's spring break and a two week unit focused on building research skills, the study would resume by tracking students through a four-week unit on William Shakespeare's play *Romeo & Juliet* with the plan to reverse the roles of the control and experimental groups.

Methods of Research and Data Collection

Observations

A variety of research methods was used to fully grasp the impact of ICT usage as a medium for inquiry in this particular school, beginning with classroom observations. The week before the ninth graders began the first literature unit of this study, I visited the school to observe

student participants. I wanted to understand the classroom and cultural dynamics that potentially could influence online interactions, as well as to see the typical mode of instruction with which the students were comfortable. Field notes were taken in each class over a three day period for the purpose of creating an accurate portrayal of the research site and participants. The notes were transcribed at the end of the visit.

I returned to the research site upon conclusion of the first literature unit and observed one class of group one students (the school was on a shortened schedule when I visited). I spent two more observation days at the end of the second literature unit, looking for any differences in participant classroom behavior, such as increased or decreased class participation, or a change in the type of answers vocalized that could be attributed to participation in the online community. Field notes were taken and transcribed again on the third (final) visit and were analyzed in relation to the first visit.

Interviews

In early February, the classroom teacher was interviewed. Audio recorded interviews took place in the teacher's classroom during her prep period over the course of two days. The teacher was provided an interview guide in advance, although we followed a semi-structured format to enable a looser dialogue between teacher and researcher. Tape recordings were transcribed nightly and stored securely for the duration of the study. The total interview time equaled just under 75 minutes (43 the first day, 31 the next).

On the second visit to the school, a short follow-up interview with the teacher was planned to clarify some information, as well as to discuss her observations of changes in student work and behavior since the study began. Questions for the second interview also were provided in advance. The interview was abbreviated, however, and the guide was not used. The teacher's

schedule was demonstrative of the practical issues that can arise in school environments. Despite three sizeable gaps of 30 minutes to an hour each in the teacher's schedule, a staff meeting ran longer than expected, a parent showed up early for a conference appointment, and another parent conference lasted twice as long as the teacher had anticipated, eliminating our possible interview windows. I spoke with the teacher for approximately twelve minutes at the end of the day before a personal commitment required her to leave. As a result of the unanticipated interruptions, additional follow up questions were addressed in email exchanges.

I conducted a concluding interview with the teacher on my third visit to the school. An interview guide was provided in advance. Because the interview took place on the second day of my visit, many of my interview questions had been answered in informal discussions with the teacher. Other questions were no longer relevant based upon the actual levels of student participation in the study; therefore the interview was a brief seventeen minutes. It was transcribed that afternoon and housed securely.

Acquisition of Student Work

On my visits to the school, I was granted open access to portfolios of participating students' work. I familiarized myself with materials in the folders and photocopied three common items for evaluative purposes. I selected a writing assessment taken earlier in the year as well as a formal writing assignment in which students analyzed the lyrics of a song viewed as relevant to their lives. Additionally, I photocopied a character analysis essay from Homer's *The Odyssey* (the literature unit prior to *To Kill a Mockingbird*) and four students' essay tests from the end of the *To Kill a Mockingbird* unit. The remainder of the tests had not been graded at the time of my visit. Once the comprehensive exam and remainder of the essay tests were graded

however, I was provided with raw scores. I was also provided with the raw scores for the *Romeo and Juliet* comprehensive exam at the end of the second literature unit.

Community Monitoring

I monitored the online community daily. This included reading each student's communication, responding to questions emailed to me through WebCT or to my personal accounts, and reviewing chat logs. Communications were printed out and coded by student, with a hard copy placed in each student's file, housed securely and listed solely by an anonymously assigned ID. I also traced who responded to whom, as well as how many times each student posted.

Participant Survey

Finally, I surveyed participants from the experimental groups at the conclusion of their respective literature unit. The purpose was to learn more about their online experiences as well as their perceptions of school and its relevance to their lives. The survey consisted of 21 multiple choice questions and seven short-answer questions. Students were given time by the teacher to complete the surveys in class.

This combination of methods provided a wealth of insight into participants' everyday and study-related literacy practices. Additional information was gleaned from informal talks with key informants about dynamics in the town and the school. By reviewing and analyzing an abundance of qualitative data, the central quantitative data that measured student achievement could be placed in the proper context, factoring in the multiple realities of participants' school experiences. As a result, inferences and conclusions could be drawn with greater confidence.

Physical Site of Research

This study took place in the town of Cornwall (pseudonym), a small Midwestern community situated about sixty miles away from a major city. The town was previously ranked as an All-American city, and served as home to a liberal arts college, as well as no less than five manufacturing plants and distribution centers. Cornwall held the county seat, and was largely surrounded by corn and soybean farms, which contributed to a rich agricultural tradition. The community housed families of several generations, since few individuals moved far from home upon reaching adulthood.

The racial makeup of the town was predominately white, though the minority population has risen in recent years as a result of the opening of an Asian-based factory and intense recruitment of minority faculty at the college. Such changes resulted in a degree of tension, with more than one of the college's minority faculty members removing their children from local schools and enrolling them in a private school in the closest major city. Classes at the high school have remained largely homogeneous.

Situated within Cornwall was Rolling Fields High School (pseudonym). It had a student population of 620. There were 39 teachers and 13 administrators. The 11 student clubs listed on the school's website focused on academics and community service. On this website, the school described itself as a "progressive" school. Students and parents accessed grades online and teachers frequently exchanged emails with parents. Technology was scarce for student use, but a computer was provided in every classroom for the teacher. There was also an additional computer in each of the two faculty lounges (one upstairs and one downstairs) that was password protected.

Virtual Site of Research

The secure online community created for Rolling Fields High School also acted as a site of research, though not dictated by physical boundaries. The online community hosted email, chat, and discussion capabilities. To assist in the development of an online community that would satisfy the needs of Rolling Fields while allowing me monitor online activities from a distance, I worked with the Office of Institutional Technology (OIT) at the University of Georgia. Through the OIT, I was granted designer access to a web-based communications program called WebCT, and I was able to set up the community as an online class. WebCT allowed me to tailor the online community to suit the ninth graders. For example, I was able to import a picture of the school mascot, personalize the topic areas, and change the background to match the school's colors. I could also import school events into a calendar page. Most importantly, through this program, I could control and limit usage to discussion and chat areas based upon a student's assigned group affiliation so that members from each group could only access the community during their turn in the experimental group; therefore data from each group could not get contaminated. The program enabled me to access all student communications, including chat logs. Students were advised of this fact before agreeing to participate in the study.

Students were granted primary control of the online community's guidelines of behavior, with the exception of two overarching rules critical to the maintenance of the community and the study. Students could not use the discussion boards and chat rooms to personally attack other students. Although a lively exchange of ideas with disagreement was encouraged, students would not be allowed to criticize or make fun of personality traits of one another in order to maintain a sense of community and a trusting environment. The second study-mandated rule was that

students could not discuss involvement in illegal activities on the boards or in the chat rooms. It was explained to students that any mention of student involvement in a crime would be turned over to the proper authorities. Beyond these two principal rules, students were allowed to establish their own guidelines and expectations.

The Participants

The ninth grade students at Rolling Fields High School looked like average teenagers, playing out the average high school stereotypes – the punks or alternative students, jocks, geeks, blondes, etc. The males tended to dress down; hair frequently unkempt and wore either a t-shirt or sweatshirt and blue jeans. Style and group affiliation therefore were distinguished by hairstyle, piercings, markings, and labels (shirts, jeans, and shoes). The females, however, displayed a variety of fashions that more clearly delineated group affiliation. The females, as a group, appeared “fixed” with hair and makeup styled in a manner that could serve as an identifier.

The teacher commented that she had experienced more discipline problems with this class than with classes in the past. This year she saw the poverty level increase with several students receiving free or reduced price lunches. The ninth grade class as a whole did not put a high priority on academics, for the most part failing to see the importance of doing well in school. It was almost like a badge of honor to perform poorly – students tended to brag to each other about low grades or forgotten homework, with one student publicly admitting he was trying to be expelled from school.

Since the winter holiday, the teacher had witnessed a further deterioration of interest in school. The students refused to read material for class. As a result, several students in each class received failing grades, with many others teetering on the brink. The poor attitude exhibited by students served as a point of high frustration for the teacher, causing her to consider leaving the

profession despite recently receiving a master's degree in education. Although she felt supported by her administration, she was tired of the high level of resistance from students. It was her 12th year of teaching high school English.

The teacher appealed to the parents of problem students on numerous occasions, but typically received little response. The parents, for the most part, had not wanted to be involved in their children's school activities. Many became upset after seeing poor grades, but their comments made the teacher feel as though they blamed the faculty and school instead of talking with their children about doing their homework. Parental interest seemed to decrease, paralleling student interest, as the school year progressed. In the fall the teacher held fifty-six parent conferences. In the spring three parents signed up. She met with a handful of others who stopped in, but the numbers were not close to the fall turnout.

Despite their negative attitudes towards schoolwork, students seemed engaged in classroom discussions. Based on my observations, they actively participated. For the most part, students paid attention in class. The difficulties appeared to arise when they left the classroom. The teacher noted that several students had to deal with issues beyond the typical ninth grade adjustment concerns over the past year, such as the death of a parent, major illness, and attention or aggression disorders.

The students who volunteered to participate in this study were a representation of the school's overall student population. Some were academically strong students, some were not, and the majority fell somewhere in between.

Processing Data

Statistical Analysis

In analyzing the data amassed throughout this study, I returned to my preliminary guiding, objectivist, post positivist question: Can technology act as an enabler for student inquiry into literature? In an effort to find data to support or refute the assertion that technology could act as an effective medium for student inquiry, I ran a number of tests for statistical analysis through the software program SPSS. The first was an univariate analysis of variance, in which the raw score averages of collected graded materials (pre and post technology engagement) of the experimental and control groups were compared and contrasted to determine the effect of the treatment (access to the online community) on student achievement.

Analyses were also conducted to determine differences based on the level of involvement of students solely in the experimental group. These tests examined the correlation between the intensity of online community usage (full participation, partial participation, or no participation) and academic performance, using pre- and post-engagement scores.

Content Analysis

Additionally, the quality of participation and level of student inquiry in the online community were assessed based on the results from a content analysis of student postings. The analysis conducted was based on a study of context units, broken down by thematic units (Krippendorff, 1980), in order to assess how students were thinking about assigned texts and the nature of their inquiries. Because length of posting did not necessarily indicate the quality of posting, I created a rubric to examine the potential level of inquiry occurring in the online community.

The quality assessment and level of inquiry rubric were based on McKenna and Stahl's (2003) three levels of questioning, mapping back to the purpose of inquiry as a means of questioning. Students were assigned point values related to the types of questions or comments (thematic units) raised in the context of their postings (Krippendorff, 1980). No points were given for posting points unrelated to the novel, such as social chatter. One point was assigned for every comment grounded in a literal reading of the text, meaning the student addressed something explicitly stated in the text of the assigned reading. Two points were allocated when a student made an inferential point, or a point based on the facts presented in the text that led him or her to make connections to something else read, seen, heard, or experienced. Students received three points when they made a critical statement or asked a critical question. This is classified as a student's expression of a value judgment related to some aspect of the text, such as the fairness of the trial in *To Kill a Mockingbird*. Critical statements could not be considered right or wrong. To account for the varying number of postings, point totals were divided by the number of postings to determine comparable percentages.

Additionally, postings were evaluated to ascertain how many times students remarked about more conventional topics and themes in literary analysis. The categories included: plot, character, setting, tone or pace, and comments with relevance to the external world. Findings from the content analysis were compared across students.

Summary

A theory of instructional practice, based on the foundations of Dewey (1938), Bakhtin (1981), and Labbo and Reinking (1999) emerged in response to literature detailing the current state of education. Building on research in the areas of adolescent literacy, inquiry-based instruction, and technology integration, a study was developed to test this theory for the purpose

of finding or refuting an educational approach that could negotiate multiple perspectives and realities. This study operated under the premise that using technology as a means to develop inquiry allowed students to apply some of their personal, everyday literacy experiences to schoolwork in unique ways while still working within the confines of traditional schooling.

The study tracked the online experiences of volunteer participants in four ninth grade English classes within a small public school in the Midwest. Students were assigned to either control or experimental group and observed over the course of two literature units (*To Kill a Mockingbird* and *Romeo and Juliet*). The roles of the groups reversed after the first literature unit, turning experimental group one into a control group and control group two into an experimental group for the duration of the second literature unit. The experimental group members interacted in an online community, focusing their online discussions on course-assigned literature, in addition to completing regular homework assignments. The control group proceeded with coursework as usual. Messages posted by experimental group members were monitored and the content analyzed in an effort to ascertain students' level of textual inquiry.

Student performance was measured through statistical analysis. I selected two pre-engagement assessments of student work (an analytical essay related to a song of the students' choosing and a character analysis from a previous literature unit) and compared students' grades to grades on the end-of-unit assessments that occurred after student involvement in the online community. By doing so, I was able to measure the effects of the inquiry-technology integration project on traditional assessment scales and grading practices. The idea being that because school structures and practices are not likely to alter dramatically in the near term, any new instructional approaches should lead to learning that is also transferable to traditional scales so that students and teachers are not penalized by the system for doing something "different."

Results of the statistical analysis will be discussed in detail in the next chapter. Additional data garnered from the content analysis, student surveys, teacher interviews, and classroom observations also will be used in Chapter Four to place the quantitative findings of the study into the proper context.

CHAPTER 4 ANALYZING THE FACTS

Omg this book is getting good and personally I think dill and scout are gonna hook up!
WHAT DO YOU THINK? i hate how we have to read so much and some of us have lifes
and don't have time for that...man I am far behind i was sick the past 2 days and I
couldnt even open my eyes and I was haveing my mom read to me while i was sick so
today i am better and i am going through and filling out the questions and i wish that
wouldnt of fell asleep so i could answer more of the questions now!! –sighs-

Participant #11, March 6, 2005

Introduction

The passage above was taken from a posting on the online community described in this study. It has been included for the purpose of grounding the study in reality, lending context to the quantitative data to be presented. Participant #11 is one person represented by the scores under evaluation who had numerous things to say about her life and literacy experiences as an adolescent that likely effected her student achievement. Because inquiry approaches are largely concerned with student experiences, her comments should not be fully separated or discounted if one wishes to attain a thorough understanding of the multiple realities of implementing an inquiry-technology approach to instruction.

Further development of context will be interspersed within discussion of the statistical analysis and the content analysis, as appropriate, through teacher interviews and observations, as well as an overview of participants' opinions regarding school. Such data points were considered relevant because they likely influenced how students interacted, if they interacted. When the

quantitative data were framed in this manner, a more complete picture became available of how classroom environment, school attitudes, and student expectations have interacted within a system that attempted a new educational approach. As a result, the benefits and disadvantages of this inquiry-technology integration could be viewed in a more realistic light.

The statistical analysis of how the use of ICTs affected student performance was presented first. Additional statistical data then were provided in reference to the specific inquiry and technology combination approach to instruction. Findings measured student academic performance in terms of traditional assessment (grades on pre- and post- engagement end-of-unit assessments) in order to determine if such an inquiry-technology integration for adolescent literacy instruction would positively or negatively affect normal school benchmarking practices. The results then were informed by student opinions of technology and its uses, both in and out of the classroom.

Once the statistical data had been addressed, a content analysis of student postings was provided. This information enabled one to examine possible relationships exhibited between inquiry and student writing. The content analysis has been framed by student opinions, as voiced through the end-of-unit surveys, as well as by observational and interview data. The qualitative data presented informed results by revealing more information about adolescent motivation and views on school literacy.

Statistical Analysis

ANOVA

Upon conclusion of student assessments at the end of each literature unit, tests were run to determine statistical significance, if any, between participation in the inquiry- technology integration project and students' academic performance on traditional measures. The type of test

performed was a univariate analysis of variance (ANOVA) in order to compare the mean academic performance of the treatment group versus the control group. Two dependent variables (the *To Kill a Mockingbird* comprehensive exam and the *To Kill a Mockingbird* essay test) were selected for use. Statistics were run solely on the scores after the *To Kill a Mockingbird* unit. Due to the extremely low participation in the *Romeo and Juliet* unit, data from the second unit would be irrelevant and incomparable to the first unit; therefore they were excluded.

In order to determine the effect of the technology intervention, a null hypothesis was adopted that the new instructional practice (in this case the use of an online community to facilitate inquiry) would have the same or less of an effect on student performance as the practices already in place ($\mu_1 \geq \mu_2$). The tests analyzed performance differences of groups based on their mean scores on two pre-technology engagement assessments and their raw scores from post-engagement measures, the *To Kill a Mockingbird* comprehensive exam and the essay test, which served as the dependent variables in their respective tests. A test was run first to compare whole groups (group one versus group two). Then another test was run in order to analyze scores based upon the differentiated levels of student participation within the experimental group. This second level of analysis was done in order to account for the lack of participation within each experimental group that could have skewed results in one direction or another.

The general comparison essay test analysis indicated essentially no difference in pre- and post- intervention scores when all students in the first experimental group were evaluated. When students assigned to the experimental group who opted not to participate in the online community were extracted from the analysis, however, a positive change in scores was detected. The change, while statistically significant, was small enough to render the overall impact of the students' experience with the online community as an inconclusive factor upon consideration of

the initial results from all students placed in the experimental group. Student writing scores on the *To Kill a Mockingbird* essay test, however, were not adversely affected by participation in the online community in either test.

There was, however, a greater positive change when the scores of the *To Kill a Mockingbird* comprehensive exam (MOCKT), made up of 100 multiple choice questions, were compared to the other pre-measures. The comparison of whole group to whole group demonstrated a slight improvement, as with the essay test, but once the group was differentiated, the second test indicated a correlation between students' experiences interacting with the technology and an improvement on their *To Kill a Mockingbird* comprehensive exam scores. To examine the differences of scores by participation level, Tables 4.1 and 4.2 should be examined in the pages that follow.

The experimental group's three full participants, indicated in the NGROUP of Table 4.1 below by 2.00, had a mean score of 89.33 on the test. The four partial participants, shown below as 1.00, had a mean score of 91.00, while the 10 experimental group students who elected not to post comments (.00) had a mean score of 76.10. The 19 member control group, assigned the label of -1.00 in Table 4.1, had a mean score of 80.16.

Table 4.1 – Descriptive Statistics (comp. exam)

Descriptive Statistics

Dependent Variable: MOCKT

NGROUP	Mean	Std. Deviation	N
-1.00	80.16	11.276	19
.00	76.10	10.847	10
1.00	91.00	3.162	4
2.00	89.33	5.859	3
Total	81.00	11.094	36

Comparing scores based on participation level, it is curious that there was very little difference between the mean scores of those who frequently participated in the online community and those who only partially participated. Yet, there is a sizeable difference between those who did not participate at all (-1.00 and .00) and those who participated at some level (1.00 and 2.00).

A test between the leveled-participation groups was run in order to ascertain how statistical significance would be affected when those who were in the experimental group but who had not actually participated were separated from those who did participate. These results were demonstrated in Table 4.2 below. Only one covariate, the pre-assessment measure SONG, appears in Table 4.2 however because in subsequent tests the covariates proved to have no effect in differentiating between those students who fully participated (2.00) and those who partially participated (1.00).

Table 4.2 – Tests of Between-Subjects Effects (comp. exam)

Tests of Between-Subjects Effects

Dependent Variable: MOCKT

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2032.115 ^a	4	508.029	6.920	.000
Intercept	7821.943	1	7821.943	106.543	.000
SONG	1170.208	1	1170.208	15.939	.000
NGROUP	565.446	3	188.482	2.567	.072
Error	2275.885	31	73.416		
Total	240504.000	36			
Corrected Total	4308.000	35			

a. R Squared = .472 (Adjusted R Squared = .404)

This test yielded a Sig. value of 0.072 for students in the experimental group. This smaller p-value, causing a rejection of the null hypothesis, reinforced the initial finding that participation in the online community had positively affected student test scores on the *To Kill a Mockingbird*

comprehensive exam. The positive effect of interaction in the online community on students' comprehensive exams is particularly interesting because the online community is perceived as a non-traditional medium for literacy development. The multiple choice comprehensive exam given to students in order to test comprehension skills was a more traditional assessment measure for literacy.

Validity

In reviewing the statistical information, it is essential to clarify issues of validity before drawing conclusions. In this study, there were three major issues of validity that should be considered. Of primary concern was the small sample size. There were a total of 36 students between groups. Sample size was compromised further when those students who agreed to participate in the online community failed to do so or engaged only on a limited basis. If the measure of participation in this study was considered by the number of postings students made to a group discussion board or the messages posted in a chat room, three students from group one participated fully (meaning they posted at least the pre-determined minimum number of comments). Four students from group one posted limited comments (defined as between one and three messages), and the remaining 11 students in group one who had signed up for the study either did not contribute as requested (i.e. they sent specific email messages to my personal or WebCT account or they tried to enter an empty chat room so no message was posted) or they failed to contribute at all. When group two experienced the treatment, its participation numbers were so low that it was futile to analyze effects. Only one student participated fully while another student could be classified as limited. The remaining 17 students who had signed up ultimately opted not to participate.

I received data through student surveys and email messages, as well as through conversations with the teacher, that a number of factors contributed to the lack of participation. Although each will be addressed throughout this chapter, as well as Chapter Five, reasons included: lack of access to the Internet or out-of-date resources, such as an old operating system or browser; user error; lack of interest; lost passwords; failure to do assigned reading; or the lack of an authority figure's presence as a reminder and problem solver. Regardless of the reason for limited participation, the small sample size of this study undeniably influenced the results. Data therefore cannot be safely generalizable.

A second issue of validity was the fact that this was a voluntary response sample (Moore, 2003). Participants elected to join the study. As such they were considered the portion of the population most likely to respond. When one examines only a population considered favorable or proactive, end data could be skewed. In this case, the limited, voluntary sample of students who participated in the study may not have reflected the same opinions, responses, or achievement levels of the entire student body.

The third issue of validity was the limited time of engagement. Such a short period of observation and interaction could only provide a preliminary glance of activities. Additionally, by studying only the earliest days of implementation, positive and/or negative changes in student behavior, attitudes, and achievement over time could not be observed or measured. By limiting the length of the engagement, students most likely did not have ample time to adjust and explore a new approach to literacy in their school.

Overview of Technology Preferences

Also before attempting to interpret results, it is important to understand how participants viewed and used technology in their everyday lives and through the duration of this study.

Student usage patterns could potentially affect outcomes. In response to student survey questions:

- 78 percent of respondents described their technology knowledge as strong, while 17 percent felt it was proficient and 5 percent felt it was limited
- 78 percent of students accessed the Internet primarily from home, 12 percent listed school as the primary point of access, while 10 percent listed the library or could not find an access location
- 44 percent described their online time as exceeding three hours a day, while 22 percent each accessed the Internet daily for less than three hours or logged on a few times a week, and the remaining 12 percent rarely if ever got online
- 94 percent of students included instant messenger as their preferred online communication style.
- Uses of the Internet were varied, with 94 percent of students remarking that more technology should be used in schools

Although participant responses to technology questions more closely mirrored national averages, some were surprising due to the actual practices in which participants did or did not engage. Two notable examples jumped out. Despite the fact that 78% of survey respondents accessed the Internet from home, 37% of those who actually engaged in the online community had no home access available.

Another surprising survey response regarded instant messenger. Almost all survey respondents described it as their favorite communication technology, yet throughout both literature units no live chats took place. Recognizing that chat rooms and IM are slightly different, the draw of the respective technologies is immediacy and the ability to carry on active

conversations. Because the technologies operate in a similar manner, it was expected that at least some online chats would take place through the community. Although there were 37 attempts to engage in chat, students never succeeded in getting together at the same time, despite one student's request for a specific meeting time in the chat rooms.

Upon conclusion of their respective literature units, students in each experimental group were asked to reflect upon their practical online experiences using ICTs for inquiry into literature. In survey comments, students expressed primarily positive feelings about the integration of technology and inquiry for the study of assigned literature. Despite low participation overall, students, including those who volunteered for the study but did not contribute online postings, appeared to endorse further use of an inquiry-technology approach to their coursework, particularly if participation numbers and ease of access to the community could increase. Students' research-experience specific comments indicated the following:

- 78 percent of participants said that they felt able to discuss topics online that they would not broach in class
- One quarter of respondents indicated that their online discussions changed the way they perceived the assigned text
- 83 percent responded that they would like to continue using the community with future readings
- Students' favorite aspects of the online community were being able to freely express their thoughts, doing so in a confidential manner, and being able to proof-read responses before contributing to ongoing discussions.
- The biggest problems or failures of the community as cited by students were lack of access and lack of participation.

Not only do the above responses demonstrate some level of adolescent interest and engagement in the online community, but students also used their comments to reflect two core values of inquiry: the ability to “speak” freely about relevant course content and the capacity to be changed by others’ comments about a text.

Content Analysis

Comment or Question Type

An essential component in determining the ultimate success or failure of this particular integration of technology for the purpose of stimulating textual inquiry was the content analysis. During the course of this study, seven students in group one and two students in group two posted messages in public areas of the online community. Their messages were read sequentially, in context, and dissected by the number and type of question asked or point made within each thematic unit in order to ascertain how students inquired into text when online, if they did inquire into text online. Students received one point for a literal comment or question (“How old is Dill again?” Participant #25, March 2, 2005), two for inferential (“Scout’s in for it now...the aunt expects Scout to be chasing after boys and looking good for them!” Participant #7, March 1, 2005; “I’m really wondering what’s going to happen with Atticus and the trial,” Participant #32, March 1, 2005), and three for critical, such as in Participant #6’s string of comments:

If I were Jem though, I don’t think I would have gone back...I would have been too scared to even think about going back...and if I had gone back I would have run away the second that I saw the pants folded and stitched...I probably would have...well, I don’t know what I would have done, but taking the pants wouldn’t have been it...what would anyone else have done??? (February 17, 2005)

No points were awarded for unrelated comments (“I’m at my friend’s house,” Participant #19, March 3, 2005).

Enclosed in Table 4.3 are the results from the initial content analysis by question type for each participant from the respective literature units. The students evaluated were described by the level of treatment they received. For full participation in the online community, students were assigned a two while those who participated on a limited level were denoted by a one. Worth noting is the fact that in every case except Participant #10 and Participant #16, the number of critical comments posted online was either greater than or matched the number of literal comments.

Table 4.3—Student Response by Question Type

Participant	Group	Treatment	Number of Posts	Literal	Inferential	Critical	Unrelated	Point Totals
06	1	2	7	9	8	20	18	87
07	1	2	6	10	10	9	24	84
11	1	2	4	5	5	5	29	62
25	1	1	3	3	3	3	2	17
32	1	1	3	4	8	4	0	35
10	1	1	2	0	5	3	0	22
19	1	1	2	1	3	2	4	14
22	2	2	4	4	6	14	2	58
16	2	1	1	1	0	0	0	1

A few other things stood out with this analysis. Overall, students asked more critical questions or made more critical statements than any other type of remark. Additionally, the number of critical units posted in the discussion groups seemed to relate to the number of times individual students posted. Those who interacted online more frequently posted a far higher number of critical comments or questions. Yet the same finding held for unrelated postings. Students who posted often, for the most part, also posted a higher percentage of unrelated comments. The obvious exception was Participant #22. This student was in group two.

It should be noted that the treatment for groups one and two differed slightly, perhaps contributing to the differences exhibited between groups. Treatment group one did not receive teacher-directed questions at the beginning of the literature unit as planned because the participants began posting messages almost immediately on their own. They took control of the community. When I asked through the discussion boards if they would like for me to provide them with some topics or ideas to think about, my posting was ignored, stalling student postings for two days before participants began posting again, continuing to run the online community on their own. Upon receipt of several student survey responses, students indicated a desire for more structure however; therefore I posed a set of loosely constructed questions, based on the examples shown by Beach and Myers (2001), for the second treatment group after they had been reminded about the community and its purpose. An excerpt from that message is included below:

The way the discussion groups are set up is to let you talk about whatever you want to talk about in terms of the play. But I've heard that it would maybe be helpful if you had some questions to think about, so here's a place to start:

Who do the families remind you of and why?

What do you think of Shakespeare?

Why do you think the play has been so popular over time?

Why do you think you have to read it?

What do you like or not like about the play or characters?

What character do you like best? Why?

You don't have to answer any of these, but they're things to think about, or you can post your own questions to everybody else. (April 26, 2005)

Because Participants #16 and #22 were in the second experimental group, their experiences with the online community may have been affected in a different way. Participant #22 in particular remained on task in exploring the text, backing up statements with explicit points from the literature until the last message, which focused primarily on the research experience. An example of a typical posting was:

Tonight for my homework assignment, was to read act 3 scene 1. This involves a major fight with Romeo. So far Romeo and Juliet has been a very good play. I liked acting out the balcony scene between Romeo and Juliet, that was fun. But I think Romeo and Juliet have the right to get married if they love each other. Even though their families are enemies, they obviously like each other, and no one can stop them from their decision. I can't wait to keep reading. (May 10, 2005)

In tracking postings over time, the three students (Participants #6, #7, and #11) that actively participated in discussions about *To Kill a Mockingbird* in group one began their online commentaries by asking critical questions. By the third week of engagement, however, their number of critical postings dropped to 0-1 per posting. Examining the content of the messages posted during this period, active participants were frustrated by the lack of involvement in the discussion group by their peers. For example, Participant #7 wrote (note: spelling and grammar

are reflected exactly as the participant wrote the message), “so does anyone else like it or is it just me cuz everytime i get on here it seems like no one is really gettin involved! COME ON PEOPLE! get involved! geeze!” Later that night, Participant #11 also acknowledged that “it would help if there were more people that got on.”

As a result of this frustration, the two participants began an online game to guess the identity of one another and were subsequently joined by Participant #6. Clues leading to personal identification were exchanged, which were marked as unrelated comments in analysis. Such clues occupied a large percentage of mid-engagement postings, although each message, regardless of intent, maintained at least a literal-level mention of something from the novel. Though the game was not related to the novel, it is worth noting that individuals who identified one another were surprised by whom they were speaking with. This is demonstrated in the following exchange between Participants #11 and #6 in relation to the identity game (note: these excerpts are in relation to the game only and do not include each participant’s writing in the same posts in regards to the novel. They are presented here solely to focus on the identity issue):

Participant #11: I am a female brown hair glasses 7th period English and I love blink 182.

Participant #6: If you’re a freshman...you are [wrong student’s name]... I have no idea... just a guess...

Participant #11: Whoo that’s far from what I would ever call myself. 1. I am much bigger then her size wise. 2. I am much shorter than her. 3. [Student’s name] liking blink 182 crazy in my book. 4. she isn’t in 7th period English.

Participant #6: Hey Red I’m sorry about that mix up.

The online discussion had enabled these participants to reveal what they wanted to reveal about themselves, as well as to view one another in a new or different way. This process of identity development continued to evolve in future postings.

Further examining group one's participation, interaction, and textual comments, three of the limited participants from group one (Participants #19, #25, and #32) joined the discussion group towards the end of the identity game, or in the final two weeks of the engagement. The fourth limited participant – Participant #10-- had been active early in the engagement but lost her Internet connectivity when her computer broke; she posted only once from a friend's house after. Of the three late, limited posters, two (Participants #19 and #32) posted no unrelated comments or questions, and the third (Participant #25) placed only two unrelated comments. Conversely, the three late-limiteds posted a higher overall percentage of critical and inferential remarks than the early-active participants. Interestingly, the early-active posters' comments and questions seemed to refocus on the novel upon the engagement of the late-limiteds, demonstrating a slight rebound in critical and inferential postings, while their unrelated and literal comments decreased.

Literary Focus of Posts

Content was also analyzed by traditional conventions of literature (plot, character, setting, etc.) in order to determine how frequently or infrequently students commented on the particular aspects of literature they would be expected to analyze in more traditional assignments. There was, however, one exception. The category of relevance was added to examine if students made connections between the text and their lives. If so, this could be a good indication that students inquired into text at a deeper level, particularly if the comments were also tied to critical points. Taking this into account, one should pay particular interest to responses of Participants #6 and #7 in Table 4.4 (below). Both of these students also posed numerous critical points in terms of comment type, which can be seen by referring back to Table 4.3.

The literary convention breakdown for all students went as follows:

Table 4.4 – Student Response by Literary Convention

Participant	Group	Treatment	Number of Posts	Plot	Character	Setting	Tone/Pace	Relevance
06	1	2	7	10	14	1	5	6
07	1	2	6	8	6	0	3	5
11	1	2	4	2	2	2	2	4
25	1	1	3	1	3	0	1	3
32	1	1	3	4	8	0	1	3
10	1	1	2	2	0	0	2	1
19	1	1	2	3	2	0	0	1
22	2	2	4	9	5	1	5	5
16	2	1	1	0	1	0	0	0

In addition to the connection between relevant comments and critical statements or questions, the majority of comments focused on central plot or character, which was to be expected given the nature of classroom conversations. Additionally, few students remarked on how the setting shaped the texts, though Participant #11 thought the sense of place lent itself to some of the more “hickish” ideas presented in *To Kill a Mockingbird*, stating at one point, “It is ALABAMA afterall.” In terms of the Tone/Pace category, the more involved students contributed a higher percentage of comments than those who were less involved. Finally, and perhaps most importantly, every student except for Participant #16 connected readings to their lives and the outside world, as evidenced by the high number of remarks marked as relevant.

Text-to-world comments were found in no less than 50% of each individual's posts (aside from Participant #16, who did not include a relevant comment in his only post).

Relevant Interview and Observation Data

When I selected Rolling Fields High School for the purpose of this study, I anticipated that the students and the teacher would be representative of an “average” American high school, meaning one that would share similar characteristics with any number of ninth grade classrooms across the country. Based on the literature and my experience as a former student at Rolling Fields, I expected to step into a traditional classroom. I anticipated observing a teacher who stood at the front of the class lecturing on the literary conventions exhibited in a classic text who asked commercially-prepared questions from a teacher's guide.

Although the teacher I was paired with often lectured to the whole class in a typical traditional format, she encouraged students to engage in active dialogue when appropriate. The teacher also explained content in ways that students could understand. For example, when the class covered *Romeo and Juliet*, she requested that the students place themselves in Juliet's position. She then asked the students to stand up who would have done what Juliet did, drinking a potion to fake her own death. Those who agreed with Juliet's actions were asked to justify why they would take the potion. The rest of the class then was asked to explain why they would not take it and alternative solutions were explored.

Additionally, the teacher indicated in her interviews that she was comfortable in the position of learner, with students taking the lead in presenting material. This stance is an essential component for inquiry-based practice, indicating that this particular teacher and this group of students perhaps would be receptive to and somewhat familiar with inquiry processes. Such an assumption was bolstered when I was informed that students often worked together on

projects within various units, though they did not follow a designated or structured process. Because of the learning context the teacher had established, I was unsure if study participants would demonstrate achievement gains at the same level as those for whom inquiry was completely novel. These factors could have influenced how the students had been taught, as well as how they viewed and discussed text; therefore it is important that the classroom environment and teaching style be noted before evaluating results.

Overview of School Attitudes

In an attempt to better understand students' motivations and opinions in reference to school, students were asked multiple questions on the end-of-unit participation survey. The data presented below included responses from study test subjects who ultimately opted not to post online as well as those who did in order to draw from the widest possible sample of students. Surveys were returned by 24 students. In the order in which they were asked (with the exception of two questions related to subject preferences that were excluded due to lack of relevant data), student responses indicated the following:

- 96 percent of student survey respondents believed that the materials studied in school would be important or meaningful to them in the future
- 92 percent of students felt challenged academically by their teachers
- 54 percent believed their teachers ask too much of them
- Ideas regarding potential school instructional changes varied by respondent, as did associations with school (though several students mentioned being bored when describing school)
- 40 percent listed whole class lectures as their preferred instructional format; 27 percent liked to work in small groups; 10 percent each liked written assignments and responding

to text online with known identities while 7 percent preferred responding to text anonymously online; and the remaining 6 percent did not want to participate unless they had to.

The attitudes displayed by student participants are important to consider. Although students' survey responses do not relate directly to the outcome measures for this study (end-of-unit assessment scores), the comments do represent students' attitudes regarding the way school is viewed in their adolescent worlds, as well as how they become motivated (or unmotivated) in the classroom. If guided by the literature presented in Chapter Two, such factors could influence student participation and involvement in classroom activities and assignments.

Summary

In a review of data, performance gains on traditional student assessment measures were demonstrated by students who participated in the online community. This particular finding was consistent when comparing the experimental group to the control group at a general level as well as on a more detailed level, as exemplified by the ANOVA by participation level. Evidence of such gains persisted regardless of the covariate selected as well, which was determined to be a non-factor in the leveled tests. However, there also was little difference in the effect between those students who participated in the online community with high level of frequency and those who participated on a limited basis.

Additionally, tests were run to seek any statistical significance between student writing assessments and participation in the online community. Although some gains appeared in the test data, the scores of participating students on the essay test evaluated did not detect statistically significant effects. At the same time, the informal nature of online writing did not hinder the more formal writing style of school discourse.

Statistical data was further informed by interviews with and observation of the classroom teacher. Data collected indicated that the teacher's instructional approach and classroom management style were not purely traditional, even though she likely taught in a more traditional school environment. Student experiences in this type of classroom setting perhaps affected their participation in the online community in ways that cannot be determined at this time. The complicated roles of the teacher and classroom environment were interesting considerations from a multiple realities viewpoint because every classroom environment is different, which could influence how students participate in any kind of inquiry-technology integration; therefore such considerations should not be excluded from an interpretation of results.

Student opinions shared through survey responses could be taken into account as well and used to frame the results of data analysis since their attitudes likely influenced how they responded online, perhaps impacting their performance. Survey results showed that students felt that school was an important part of their lives, and that their teachers were providing them with meaningful information and skills for the future, even if classes were sometimes boring and teachers expect too much. Students acknowledged comfort with the more traditional classroom approaches to instruction, such as a teacher lecturing to the whole class. Yet, at the same time, most would like to see more technology used in their classrooms. In this particular case, students and their teacher described themselves as comfortable with technology, but often could not find time or the resources to use it in the ways that they wanted. Such opinions both supported and contrasted the adolescent literacy research highlighted in the literature review, pointing to the complexities of trying to make instructional generalizations in ever-changing real-world environments.

A review of data compiled through the content analysis showed that students who participated in the online community with greater frequency appeared not only to be more engaged with text, but also seemed to inquire into the text at a deeper level than before their inquiry-technology experience. The level and intensity of inquiry was threatened however when posters became frustrated with the low participation numbers. .

While some of the findings from data analysis were encouraging, they must be placed into the proper context. The previously outlined issues of validity (small sample size, voluntary response, and limited time of engagement) were substantial and should be factored into all data interpretations. As a result, findings could be evaluated best as early indications from a pilot study, rather than findings of generalizable facts. Further issues and implications will be discussed in the concluding chapter.

CHAPTER 5

INTERPRETATIONS AND IMPLICATIONS

We have the problem of ascertaining how acquaintance with the past may be translated into a potent instrumentality for dealing effectively with the future. We may reject knowledge of the past as the end of education and thereby only emphasize its importance as a means. When we do that we have a problem that is new in the story of education: How shall the young be acquainted with the past in such a way that acquaintance is a potent agent in appreciation of the living present?

-- John Dewey, 1938, p. 23

Introduction

This study was designed to build upon Dewey's (1938) notion of traditional education, Bahktin's (1981) concept of heteroglossia, and Labbo and Reinking's (1999) multiple realities perspective. The three-pronged theoretical foundation was constructed as a means of logically examining the role of instruction in United States' school systems, specifically focusing on adolescent literacy. Dewey's (1938) work provided a frame for looking at how schools are set up and how instruction within those schools takes place. By contrasting traditional, teacher-centered instructional models and progressive, more experiential practices of instruction, Dewey indicated that there are merits and flaws to each of the two approaches. He encouraged educators to acknowledge the pros and the cons of their manner of schooling in order to create an educational system and means of instruction that does not merely react to what is wrong with existing models. One should instead develop a system that can stand on its own to work for students and

society. Dewey's work continues to illuminate the issues and tensions at play in the current educational system. In relation to this particular study, the educational approach tested was designed to draw upon the positive aspects of traditional and progressive instructional practices in order to create a new avenue for student learning.

Bakhtin's (1981) concept of heteroglossia also proved relevant to this study. At the very broad level, it was selected as a theory of language to explore the tensions that exist in developing adolescent literacy. If one considers literacy instruction in secondary schools in terms of heteroglossia, the traditional school discourse typically invoked would be viewed as the privileged centripetal force, while various adolescent literacy practices that value the individual could be seen as centrifugal forces. The earlier literature review explored how the opposition unfolds and affects classroom learning. The result has been a lack of instructional balance, with the centripetal forces ruling over the centrifugal ones, as many adolescent literacy practices remain unrecognized or valued by the educational system (Knobel, 2001).

Yet, heteroglossia also could be seen as a metaphor for some of the larger educational issues hindering literacy instruction. Extending its definition to the larger educational system, it could be said that centripetal forces represent traditional instructional models and centrifugal forces symbolize progressive instructional models. There exists a tension between them, with traditional education seemingly winning the instructional battle. Bakhtin argued however that balance between centripetal and centrifugal forces is necessary to avoid systems of either dictatorship or anarchy. Bakhtin's stance, with respect to this study, is in line with Dewey's argument that neither traditional nor progressive education is wholly bad or wholly good; both must be respected and drawn upon to achieve the goal of learning. The specific need for instructional balance was discussed further in the literature review, propelled by Jetton and

Alexander's (2004) contention that there is a time and a need for teacher-centered instruction and student-centered instruction.

Labbo and Reinking (1999) provided the final piece of this study's theoretical foundation by acknowledging that instructional conflicts can manifest in teachers because of the multiple realities they must negotiate. Although Labbo and Reinking's research informed this study's design by focusing on purposeful technology integration in the classroom, they also discussed throughout their work the many factors that could influence and impede the balance advocated by Dewey and Bakhtin. Such extraneous factors discussed in the earlier review of published research included time constraints, differing knowledge levels, and the burdens of high-stakes testing. Through their article, Labbo and Reinking (1999) provided a means to connect the theoretical arguments of Dewey and Bakhtin with the practical realities that teachers face in the classroom everyday. This practical piece cannot be ignored if new instructional practices are to be adopted because there are many uncontrollable variables in every classroom.

Drawing upon this foundation, assumptions were formed and carried into the post-positivist study. The argument I developed based on my assumptions was that although traditional education can be too restrictive and limiting of student thought, progressive education reforms can be too reactionary to be effective in the real world. An approach that bridges traditional and progressive education is then necessary to balance the forces involved in schooling. In an effort to create such balance, I tested the hypothesis that technology can offer teachers an opportunity to negotiate the multiple realities they face while stimulating students' intellectual capacity.

The resulting study examined the effects of technology on student inquiry processes into classroom texts. I observed, evaluated, and compared ninth grade English students who had

access to an online community for the duration of a literature unit. Evidence of the direct effect on academic performance was provided through quantitative data analysis, which was further supplemented by qualitative analysis of online community content, teacher interviews, classroom observations, and student survey responses. The study's limited participation and slightly mixed findings revealed considerable complications associated with implementing an inquiry approach to literature through technology.

Interpretation of Data

This study specifically examined the practical capacity for ICTs to act as a medium for student inquiry into and communication about text within an everyday classroom environment. Based on the work of Beach and Lundell (1998), an online community that provided access to multiple ICTs was designed to take a culturally relevant mechanism for communication and apply it purposefully to school instruction. I anticipated, based on the work of scholars such as King and O'Brien (2002), Lankshear and Knobel (2003) and Reed, et al. (2004) that the integration of technology with everyday content would motivate the students to engage with literature in new ways.

The ninth grade students who volunteered to participate in the online community were expected to communicate and share ideas about their assigned readings. In actual practice, however, few of the study's participants ever posted messages. The level of participation was worse in the community's chat rooms where no messages were posted. The low level of participation implies that perhaps students lacked interest in sampling a new way to think about assigned reading. This assertion is reinforced by student survey responses indicating that this particular group was comfortable with traditional instruction and that they felt little need for instruction through alternative methods.

Perhaps the lack of motivation to participate in the online community (chat rooms or discussion boards) can be explained best by Alvermann and Heron's (2001) study. The researchers found that genuine engagement, defined in my case as students' use of ICTs outside of the classroom, is perhaps the best way to develop literacy skills, instead of trying to twist the literacy practices that students enjoy in their leisure time into school activities. Teachers should acknowledge and respect outside literacy practices without trying to usurp them. Reed, et al. (2004) suggest that students' motivation to participate in this particular project may not be there simply because in this case the use of the technology was imposed by adults and again was not authentic. Taking this notion into account, it is possible that students involved in my study declined participation because they simply did not want to re-associate their leisure activities of communicating online with school assignments. By re-appropriating ICTs for classroom uses, technology potentially could be seen to lose some of its value as a "cool" and fun way to communicate. This could indicate that a blurring of the lines between school literacy and outside literacy practices is at the very least difficult to balance.

Another potential explanation for the lack of participation relates to Strommen and Mates' (2004) findings regarding "non-readers." Many of the students involved in this study could be described as the non-readers who found reading to be to "tedious," "slow," or "boring" (p.198). If the students were unwilling to read to begin with, it is not a stretch to believe that they likely would not be in a position to voluntarily write about an assigned text. If this was the case, interest in an online community was not enough of a motivational factor to encourage students to read assigned texts, even if students liked the idea of participating in an online community.

Students who were motivated to participate in the online community, however, seemed to benefit from the experience. In terms of academic performance, there was an increase in scores

on the comprehensive exam for *To Kill a Mockingbird*. This is interesting because the analytical skills developed by students online appear to be transferable between the progressive, free-flowing, form of written communication enabled through the online community and the traditional, 100 question multiple choice test. Such results could prove to be important in today's school climate.

As researchers such as Casabarro (2005), McGhee and Nelson (2005), and McNeil (2000) noted, many teachers shy away from trying new instructional practices out of fear that such practices will negatively affect student performance on high-stakes tests. Implications from my study's data can be drawn however that the students who engaged in non-traditional online discussions improved their performance on a comprehensive exam similar in format and content to many high-stakes tests. This means that teachers who have feared a negative impact on traditional assessments may not have as much to worry about when introducing non-traditional approaches to learning. Students who take part in some well-structured, thought-provoking non-traditional assignments may in fact show gains.

In examining data however, one of the most bewildering findings is related to all statistical analyses performed on the pre- and post- intervention scores. There was a lack of differentiation in assessment scores between students who participated on a limited level and students who fully participated in the online community. In fact, on the *To Kill a Mockingbird* comprehensive exam, the scores of the limited involvement students were slightly higher on the test than those who actively participated. A possible explanation for the lack of differentiation again could be related to motivation. Overall results seem to indicate that the level of participation did not matter as long as students were motivated to participate at some level. Any improvement in scores could be viewed as attributable to the motivation of students to interact

with the text and each other through the community rather than how they were influenced by content exchanged in discussions.

In examining the extent to which students' inquiry processes were affected by students' willingness to engage with the technology, it appears that students benefited from the experience of communicating their interpretations of assigned text, even if they did not appear to be motivated by content. Students who posted comments online first had to read the assigned text. Then they had to think about the points in the text that stood out to them and why before explaining their ideas to classmates. Students also reacted to what others had to say, continually developing conversations about text through text. This multi-tiered process of textual evaluation seemed to help students boost their comprehension skills as well as increase their capacity to think critically. With one exception, the number of critical comments posted by participants was either greater than or equal to their number of literal comments, demonstrating that students moved past the basic conceptualization of literacy and began to develop the high literacy skills that Slater (2004) espoused. This conclusion is bolstered by the evidence that students also exhibited a high number of relevant, text-to-world comments in comparison with comments on literary conventions. Based on evaluation of student postings then, it might be inferred that some level of higher order thinking occurred through the students' online writing process.

Another point worth noting about the role inquiry played in students' online experiences was revealed through their survey responses. Students indicated an appreciation and adoption of some of the core values of inquiry. Participants stated that they felt free to express new, non-traditional ideas related to the text that traditional classroom discourse might not respect. Fecho (2004) discussed this type of independent expression as one of the key benefits of inquiry because students begin to break down their concept of school literacy and open their minds to

different and perhaps more personally relevant interpretations of texts. In doing so, students may connect with texts in new ways, therefore learning in new ways.

The second value of inquiry participants seemed to adopt was transaction – transaction between self and text as well transaction between self and others. Several students commented that their online discussions changed the way they perceived assigned reading. Rosenblatt (1994) best addressed this value in her exploration of the impact of textual relationships as the relationship between the reader and the text and the relationship between multiple readers who discussed the text. New meanings and interpretations are generated with each interaction, causing an ongoing process of meaning transaction through which all parties are changed. The students actively involved in this study transacted with each other and their interpretations of text were changed as a result.

Study Implications

If one views the purpose of the technology integration in this study as an element of student inquiry into text, it becomes important to think about how the students are invited to enter into that inquiry; therefore there are three areas that should be considered: the students, the teacher, and the medium. Implications can be drawn from each of these three major categories.

The Students

From this study, one could infer that just because a student likes technology, he or she may not be attracted to using it for schoolwork. It is not enough to take a student's interest from isolated survey replies to try to create a platform for his or her expression. What is missing is the individual student's history, which includes far more than his or her ability to access the Internet. Because inquiry is based on experience, the extent to which someone has interacted with technology, texts, and other classmates is relevant and should not be ignored. In creating a

meaningful technology integration that promotes learning, one should consider not only the tool but the tool user. To take the user for granted deprives any inquiry of its richness and full potential. Students should have some say in how to integrate technology or other outside literacy practices with their school curriculum if new instructional practices are to be successfully adopted by students.

The Teachers

Teachers bear a significant responsibility in the success of any inquiry engagement. They are the ones who issue the invitation and control the structure of the inquiry. To set the stage for a successful long-term inquiry environment, teachers should promote and guide questioning from the early days in the classroom to stimulate thinking and prioritize critical questioning skills. At the same time, the teacher must fulfill the civic responsibility of creating a safe and comfortable learning environment so that students feel able to share without fear of criticism or teasing from other classmates. Once such an environment has been created and an invitation for student inquiry issued and respected, the teacher can shift his or her focus from being the dictator of content to the facilitator of discussion. Such an environment was not instituted in this study; therefore student inquiry did not occur at a sustained level.

The future success of an inquiry-technology classroom integration appears to need the endorsement from an authority figure, specifically a teacher or another educator. One plausible explanation for low participation was that I conducted my research at a distance. I was unable to interact with students in person on any kind of regular basis. As a result, it was difficult for me to gauge how much help or encouragement was needed, as well as to determine the best way to deliver it. I answered emails and requests in a timely manner and sent hard copy notes to all students enrolled in the experimental group three weeks into the experience in order to remind

them of passwords, how the online community worked, where to find it, and what it was for. This was not enough to sustain interest. I did, however, witness spikes in students' participation after my school visits and notes to students. When I asked the teacher about participation issues, she indicated that her students needed to be reminded almost daily about the online community. The teacher did not remind students frequently or request increased participation in order to provide an accurate measurement of how effective the community could be without extensive teacher involvement. She did not want to interfere with the research process or skew results in any way with outside intervention. What can be gleaned from the lack of participation is that a teacher's guidance is essential for student success.

Though the demands on teachers are already sizeable, if one wants to implement technology or inquiry in a meaningful way the teacher should become invested in the project over a period of time, which does not have to mean letting the project become time consuming. As Beach and Marshall (1991) and Knobel (2001) pointed out, the teacher is ultimately responsible for motivating students and providing the structure for their efforts. If Cuban's (2001) findings can be applied to inquiry, then teachers seem willing and able to adjust instructional practices in this manner. What is being suggested by this study requires incremental change on behalf of the teachers, rather than a systemic change in the way that they operate. Using technology for inquiry, incorporating it a little at a time over the course of the school year, could speed meaningful adoption of technology. Otherwise, if teachers are expected to make broad sweeping changes in all of their practices to accommodate technology, change may come much slower than anticipated.

Teacher endorsement of an inquiry-technology integration could come in multiple forms. A teacher may offer extra credit for online discussions, as did the teacher in this study; he or she

might make online discussions mandatory homework, thus bestowing a certain instructional value on the online communities; or he or she might devote class time, as exemplified by the teachers involved in Beach and Lundell's study (1998). There are numerous possibilities and levels of involvement, but teacher endorsement seems to be the best way for an inquiry-technology implementation to reach its potential.

If a teacher does not emphasize the importance of such communications, students will likely never make the investment in participation that is required by inquiry approaches. It simply may seem like more homework. Until students spend time interacting online, they cannot experience the benefits of transaction. Technology is a tool teachers can use to inspire layers of textual inquiry and transactions of meaning, but teachers must be willing to put some energy into building the community first. Whether the investment will be worth it to teachers in the real world remains to be seen.

The Medium

On a broad scale, using technology as a medium for evaluating literature means that students will likely be asked to utilize a new mode of instruction; therefore a learning curve should be taken into account. To ease the instructional transition, it seems that students should be provided with more structure in the early stages of textual exploration through technology, with the teacher easing out as students demonstrate a comfort level. In regards to this study, perhaps not enough structure was put into place with respect to content. I had trained the students how to use the community, but a fully-developed system for initiating thoughtful commentary on assigned readings was not activated with the first experimental group. When slightly more structure was provided to the second experimental group, the two student respondents were acutely focused on the text and remained so in future postings.

I had originally planned to post discussion points or ask broad but relevant questions about the assigned reading for both groups, beginning with *To Kill a Mockingbird*, in the manner advocated by scholars such as Beach and Myers (2001) and Ciardiello (2003). The students in the first experimental group however began posting messages almost immediately without such prompts, so I decided to let them continue on their own while they were motivated, shaping the community as they wanted and responding to emails as needed.

I posted a message to the discussion board, asking students if their preference was to continue leading the discussion themselves or if they wanted me to pose some broad questions to ponder. My posting was ignored, but the students continued to respond to one another. I inferred that they wanted to maintain control of the discussion boards and for me to remove myself from their interactions. Yet, it appeared from their survey responses that my decision to leave them to their own devices was a misstep. Their survey feedback hinted at desire for more guidance in the discussions. With this in mind, the second experimental group had the option of responding to some initial thought-provoking questions or initiating their own discussions about the assigned reading. Though the introduction of such questions did not lead to an increase in participation overall, it appeared to enhance the quality level of responses received from the group's participants. Postings were highly focused on *Romeo and Juliet*.

It seems that adding more structure could help students concentrate on the content of text. Improved structure could minimize the destabilizing moments that impede learning, such as the period in which community participation waned mid-way through the first experimental group. Because students were not given a point of focus, it became difficult for the same few people to generate new content for discussion on their own. Their thoughts wandered and they started to play a game to guess each other's identity before getting back on track. If some structure had

been in place to provide open-ended, thought-provoking questions, students could continue their inquiry processes irregardless of the number of people involved in discussion. Participant #22 is a good example. She continued to post even without other active participants in her group, and she had a bit more structure on the front-end of her online experience.

Once the online community is stable and established however, students should carry out the responsibility of setting guidelines and expectations so that they feel a sense of ownership and freedom in what and how they write. Doing so could empower students by placing them in control of their learning experiences, as Reed, et al. (2004) suggested. An online community of this nature could potentially achieve the balance between the authoritative, centripetal, teacher-centered approach and the more open, centrifugal, student-centered approach. Such a structural blending seems to fit with the methods of instruction endorsed by the work of Dewey (1938), Bahktin (1981), and Jetton and Alexander (2004). The amount of structure needed to create and sustain active online inquiry communities is not something that is likely to be generalizable across classrooms because each teacher and group of students are different; therefore it is up to the individual teacher to strike such a balance in the creation of online discussions about literature..

In focusing on the implications related to the specific technologies employed in this study, a few key points stand out. I had anticipated that the chat feature of the online community would be widely used based on students' seeming interest in chat technologies (e.g. Pew Internet & American Life Project, 2001). The immediacy is part of their draw since students can discuss in real-time. What can be implied from the failure of the chat rooms in this study is that while chat may be fun for adolescents, they may not be conducive to the inquiry process into classroom texts.

Because messages in chat rooms are posted in real-time, online conversations move very quickly. The students involved in this study, however, seemed to reject these seemingly “live” conversations in favor of online discussion boards that afford more time for students to reflect on their texts, as well as others’ comments, before posting responses. This assertion is bolstered by the fact that there was a sizeable time gap between student responses posted to the discussion boards and the preceding messages that prompted comment, indicating that students read messages and took the time to think about them before writing their own response. Study participants who answered survey questions also voiced opinions that they enjoyed the extra time allowed by using discussion boards so that they could think about what they wanted to convey without feeling the pressure of crafting an immediate response to another student’s posting, as they do with other messaging technologies.

Using the online discussion boards also seemed to provide students with the freedom to relax and find their own way to express opinions on assigned readings. In the online discussion environment, the students appeared to enjoy not only the reflection time afforded by the discussion boards, but also the fact that they were unknown and could discuss texts with others without revealing their identities to the group. Posting more detailed messages online as unidentified students was appreciated by users of the community, as reflected in most participant survey responses. They felt safe to reveal their thoughts, which resulted in the building of a trusted community. Such interactions and community building activities appear to be more difficult to cultivate within the immediacy of chat rooms, based upon the student experiences in this particular study.

Additional Considerations: More/Better Resources

A point of uncertainty for the future remains the role that resources play in the adoption of instructional practices that involve technology. Based on the students' responses and participation levels in this study, there is reason to believe that some type of digital divide still exists, but that it may not be an absolute inhibitor. In their reviews of home Internet usage data, Mossberger, et al. (2003) found that although the gaps in technology usage are narrowing, they do exist and continue to make it difficult for those students who do not have home access to perform tasks such as participating in online communities. Students lacking resources then are not only restricted in the amount of access they have, but also by limitations on the acquisition of skills. Because these students do not have the same opportunities to get online, they do not receive the same level of practice in navigating technology; therefore when they are asked to perform school tasks on computers, they begin at a deficit. Starting from a deficit and having to struggle for access can negate students' desire to participate in an online community. Student responses on my study's survey questions reflect a level of agreement with the Mossberger's findings.

Although there are outlets other than the home for Internet usage, if more schools had a greater number of modern computers available to students (Kim and Kamil, 2004), or if more students could find an Internet connection at home, participation in online inquiry communities would likely increase in both quantity and quality. Many students involved in this study indicated through their survey responses that had the access to computers been easier (such as getting online at school), they would have liked to participate in the online community. Others revealed that they could not log-on to the online community or that they had technical issues because their systems were too old and out-of-date. These students stated that if additional

resources had been available to them, they would have taken advantage of the online community. From this standpoint, it seems the digital divide is still an inhibitor to technology-enabled instruction, at least in this particular environment.

Multiple students involved in the study who did not have home access found a way to access the community however. In fact, two of the most involved participants did not have home access to the Internet. It can be inferred from the involvement of students who lacked home access that students without resources may still find the motivation to actively participate. The overall participation percentages suggest that although an absence of technology in the home seemed to hinder online community involvement, the lack of resources failed to be an absolute deterrent from participating, just as possessing an Internet connection did not guarantee participation in the online community.

To encourage online involvement in inquiry communities, access to resources should be easy, rather than a chore, in order to actively engage and maintain high motivation. This means that even if a student's only available Internet access is at school, the school should try to make machines as accessible to students as possible, even if it means increasing the number of computers available and the hours they are available as Kim and Kamil (2004) suggested. Additionally, resources should be kept up to date in order to reduce end-user frustration and technical difficulties that can detract interest from online inquiry communities and reduce learning opportunities.

Areas for Future Study

The findings of this study offer some promise for the future use of technology as a mechanism for adolescent inquiries into text, but they warrant further study with a larger group of students over an increased period of time. Limited research has been done in the field to

examine the degree to which practical issues associated with technology integration can inhibit adoption. Such issues can include but are not limited to the impact home Internet access has on student participation in online communities, the influence outdated or restricted resources holds on students' ability to participate in online discussions, and the best ways to practically introduce technology in classrooms, taking into account that many teachers may feel hesitant or resistant. These concerns could effect technology adoption for the purpose of inquiry and warrant further examination.

Future studies would be particularly valuable if my early findings hold on a larger scale because as Jetton and Alexander (2004) noted, adolescent involvement and engagement in reading is related to achievement. The students in my study who were motivated to actively engage in their assigned readings and with the technology provided realized achievement gains on traditional school measures that are likely to continue over time. This suggests that the more students become involved in textual inquiry online, and the more their scores on end-of-unit tests increase, the more students will become engaged with their assigned readings.

Additionally, researchers should continue to examine the important role motivation plays in student participation in new forms of literacy. A predominance of the literature suggests that because adolescents are involved with ICTs outside of the classroom, they also will want to use them inside of schools in order to make more connections between social and school lives. Yet, the students involved in this study did not gravitate towards engaging with technology as part of an extra-credit assignment. It is important to obtain a better understanding of why they opted not to discuss the literature online. Was it because they did not do their reading assignments, making it difficult to comment without knowledge of the material? Did they dislike the medium? Was it too hard to use? What exactly what factored in to the decision to participate

or not, and what can be changed in the future to make an inquiry-based, technology driven assignment appealing and productive for a higher number of students? This study opened the door to these and many other questions ripe for research.

Additionally, a majority of all English 9 students did not volunteer for the study, even though I found that numerous non-participating students were active users of ICTs outside of school based on their conversations with me, the conversations I observed with others, and the discussions I had with the teacher. An even higher percentage of students who did volunteer to participate never posted a message online. What I can infer from data and the literature seems to validate Reed and her colleagues' (2004) point that even attempts to provide meaningful, engaging literacy experiences in the classroom based on perceived student wants, needs, and interests can fail because teachers or researchers may not truly know what activities will motivate adolescents. Further research is needed to explore this opinion, as well as to determine if another mode of implementation of ICTs in schools would motivate students in a way that this study failed to do.

Summary

This study of an inquiry-and-technology integration into an English literature curriculum has yielded multiple implications for student learning in real-world environments, such as the need for increased structure and teacher involvement in facilitating such a community, as well as pointing to a lack in student motivation when given the opportunity to participate. Yet, data measuring the effectiveness of the relationships between inquiry processes, online engagement with text, and student performance showed that using technology to facilitate inquiry could potentially raise test scores on traditional measures. Additionally, it could be inferred from supplemental qualitative data that inquiry processes were activated by the students involved in

the online community, potentially contributing to the development of higher order literacy skills in this group of adolescents.

Overall, the statistical analysis and additional qualitative data garnered from this study reflected the numerous complexities associated with introducing new methods of literacy instruction amidst the multiple realities of schooling. In an effort to recognize the difficulties teachers face in implementing any new instructional approach, I attempted to design a study that would yield as much practical information as possible about the opportunities and pitfalls of technology-and-inquiry integration so that teachers who are considering new applications for technology in the classroom have a clear understanding of what they could face upon implementation. The result is a study that reflects the diversity of student needs and motivations, and demonstrates optimism for future gains as well as some uncertainty as to the best route to get there.

Although this study begins to explore some of the issues related to practical integrations of technology with inquiry-based instructional practices, and it brings to light some encouraging data, this study raises many more questions about the best uses for technology and/or inquiry in the classroom as a means for developing adolescent literacy. In response to my original guiding question (Is technology an effective medium for adolescent students' inquiries into assigned texts?), there is not a simple yes or no answer. The approach used in this study yielded some positive data, such as the grade gains exhibited by students who posted messages in the online community, leaving me with the belief that yes, this method of instruction has the potential to be effective in increasing student performance and enhancing critical thinking skills. But the adoption hurdles are sizeable and should not be discounted. Much work is left to be done in order

to understand whether or not such an integration of technology can stand on its own and serve adolescents and teachers in the balanced manner that Dewey and Bakhtin suggested.

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