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Technology Resolved: An Ethnographic Approach to Instructional Design within Urban Middle School Debate

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ACCEPTANCE

This dissertation, TECHNOLOGY RESOLVED: AN ETHNOGRAPHIC APPROACH TO INSTRUCTIONAL DESIGN WITHIN URBAN MIDDLE SCHOOL DEBATE, by DANA BRYANT, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree Doctor of Philosophy in the College of Education, Georgia State University.

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ABSTRACT

TECHNOLOGY RESOLVED: AN ETHNOGRAPHIC APPROACH TO INSTRUCTIONAL DESIGN WITHIN URBAN MIDDLE SCHOOL DEBATE

by
Dana M. Bryant

Technology literacy is the latest achievement benchmark for 8^{th} grade public school students under No Child Left Behind (NCLB). Although necessary for contemporary academic and professional success (Selfe, 1999; Pearson & Young, 2002), this benchmark is at odds with the legacy and current state of social inequities within American public education, as all students have not been provided with equal opportunities for engaging and safe learning environments (Kozol, 1991; Darling-Hammond, 2006)—much less technology enabled ones. The purpose of this qualitative study was to design culturally informed technology activities for urban middle school students in the Computer Assisted Debate (CAD) after school program and then observe the consequences of these activities within the community. The guiding research questions are: (1) What occurs in a CAD program community when an ethnographic approach to instructional design is implemented? (2) What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?

Taking an ethnographic approach to instructional design, the researcher observed and participated in CAD after-school sessions at one urban middle school for 7 months. Data sources for the study included field notes, student artifacts, student and faculty interviews, and surveys. Evidence regarding their existing technology literacy knowledge base revealed varying levels of skills among the debate students, and that students themselves may not be able to calibrate what they know versus what they do not. Findings also revealed that the introduction of the activities influenced student participants' technology literacy by allowing them to demonstrate web-based research skills. Other emergent topics regarding impact of the activities included classroom management, faculty curriculum materials, and visual instruction. Among other recommendations, the researcher found that activities should be designed to elicit a high level of student engagement and motivation, which tend to be unique for distinct student groups. The research findings contribute to scholarly literature regarding (1) developing innovative educational technology strategies to help urban kids learn and (2) instructional strategies within urban debate. Future studies should more closely examine consistent technology supported instruction over time and within urban debate, and debate faculty experiences regarding teaching with technology.

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Dana M. Bryant

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ABBREVIATIONS

AAVE:	African American Vernacular English
ADDIE:	Analysis, Design, Develop, Implement & Evaluate
AHA:	Atlanta Housing Authority
AYP:	Adequate Yearly Progress
CAD:	Computer Assisted Debate
CRCT:	Criterion-Referenced Competency Test
ETS:	Educational Testing Service
GaDOE:	Georgia Department of Education
GIS:	Geographic Information System
GPA:	Grade Point Average
GSU:	Georgia State University
ICT:	Information and Communication Technologies
IDT:	Instructional Design and Technology

IRB:	Institutional Review Board
ISP:	Internet Service Provider
ISTE:	International Society for Technology Education
IT:	Information Technology
K-12:	Kindergarten – Twelfth grade (elementary and secondary education)
MLK:	Martin Luther King, Jr.
MSDL:	Middle School Debate League
NCES:	National Center for Education Studies
NCLB:	No Child Left Behind
NDL:	National Debate League
NET·S:	National Technology Standards for Students
NFL:	National Forensics League
NLG:	New London Group
SES:	Socio-economic status
SITE:	Society for Technology and Teacher Education
UDL:	Urban Debate League
WWW:	World Wide Web

CHAPTER ONE

INTRODUCTION

Technology literacy, or proficiency with and knowledge of technology, has now become paramount in elementary and secondary education, with mandatory standardized testing in public middle school (NCLB, 2002), and testing prevalent in high school and during the first year of college (Kalantzis et al, 2003; Zellner, 2005). This latest achievement benchmark, although necessary for contemporary academic and professional success (NLG, 1996; Selfe, 1999; Pearson & Young, 2002), is seemingly at odds with the legacy and current state of social inequities within American public education, as all students have not been provided with equal opportunities for engaging and safe learning environments (Kozol, 1991; Parker et al, 1998; Darling-Hammond, 2006)—much less technology enabled ones. One relatively successful educational reform strategy that is leveling the playing field for students is the Urban Debate League (Wade, 1998; Ruenzel, 2002). As an exemplar, the Computer Assisted Debate (CAD) after school program within the Atlanta Urban Debate League is poised to help bridge the gap between traditionally marginalized students and their better prepared counterparts, but it is limited by lack of an appropriate and engaging technology curriculum. This dissertation presents a critical agenda asserting that technology supported learning activities tailored for an urban debate program can be a successful method for teaching technology literacy skills. The purpose of this qualitative study was to design culturally informed technology activities for urban middle school students participating in a Computer Assisted Debate (CAD) after school program and then observe the consequences of these activities within the community.

Background/Approach of the Study

Current longitudinal data suggests this community of urban middle school debaters is starting to flourish academically, in spite of daunting challenges related to school resources and student socioeconomic status (Winkler, 2008). Academic literature supports employing collaborative teaching and learning as a way to improve student achievement and motivation within urban schools (Parker et al, 1998; Shields & Behrman, 2000; Darling-Hammond, 2006), and the CAD program is reinforcing that by using successful debate instructional strategies (Impact Coalition, 2007). By also factoring in technology literacy education, CAD has the potential to empower and enable students with limited technology access, and prepare them for technology literacy achievement tests and more importantly, life skills influenced by contemporary use of technology.

In a previous pilot ethnography, I had the opportunity to observe how technology was utilized in one particular CAD program community. I was intrigued by the CAD program because it targeted middle school students who live in federally subsidized housing programs to participate in after school programs that strengthen public speaking, debate, and Internet research skills. My initial investigation of student beliefs and critical evaluation of Internet resources also revealed challenges CAD students and faculty had with acquiring and using reliable technology equipment and using technology on a regular basis (Bryant, 2007). I found that an appropriate, consistent, and engaging technology curriculum was emphatically desired by CAD administrators and faculty, but conspicuously missing. I began thinking—can technology activities situated within the context of urban debate influence development of technology literacy for this community of at-risk students? One year later, with research plan in place, I set to find out.

The current study sought to (1) collect ethnographic data about the students, faculty, and overall CAD program community (in order to develop a comprehensive description of pre-existing culture) (2) use the data to design a technology intervention that reflects community values and supports program goals, while taking into account grade-level technology literacy standards and available technology resources, and (3) provide an in-depth account of the subsequent implementation of the technology activities for middle school students within an urban debate program, while informing research questions for future endeavors.

Research Statement & Guiding Questions

The purpose of the study was to design culturally informed technology activities for the Computer Assisted Debate (CAD) after school program and then observe the consequences of these activities within the CAD community. The following were the guiding research questions:

1. What occurs in a CAD program community when an ethnographic approach to instructional design is implemented?
2. What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?

Critical ethnography was selected as an appropriate methodology for this investigation. While traditional ethnography focuses on describing what is, critical ethnography also questions what could be (Thomas, 1993). The critical agenda for this investigation asserts that technology supported learning activities tailored for an urban debate program can be a successful method for teaching technology literacy skills while supplementing school curricula that may not be present or inadequate.

Scope, Limitations & Significance of the Study

The data collection for this critical ethnography took place during the 2008-2009 academic public school year. The researcher observed and participated in CAD after-school sessions at one urban middle school from November 2008-May 2009. It should be noted that the anticipated data collection period was abbreviated by six (6) weeks. Transportation, administrative and funding issues necessitated a late start to the CAD program which traditionally starts in September. Student participant numbers may have been limited by competing after-school commitments. Many students had already started attending other after-school activities because of the delayed start of the CAD program.

These students came to CAD sporadically, if at all. Although weekly student attendance for the after-school session ranged from 12-15 students, only eight (8) were selected as participants in this study because they returned the proper student and guardian consent forms. Another issue was that most of the student population was in the process of mandatory relocation due to the final stages of demolition of all metro Atlanta housing projects, as part of the federal Hope VI initiative. Hope VI, funded by the U.S. Department of Housing and Urban Development, is a program to decentralize poverty by dismantling traditional public housing projects and rebuilding mixed use communities. Many students who participated in this research study were in the process of moving to new homes, or waiting to hear where their new home would be. This may have contributed to the limited number of completed sets of guardian consent forms for CAD students to formally participate in this study.

Despite the abbreviated time in the field and smaller than anticipated number of student participants, it is hoped that the findings from this study will add to academic literature, and serve to link pedagogy and practice. Although published research has proposed that the sense of community and support found within urban debate is a factor for student success (Wade, 1998; Bellon, 2000; Hall, 2006), there is no published research found utilizing urban debate instruction for teaching technology literacy skills. The landmark *Open Society Institute* report addressed the need for after-school debate activities to be used within daily schoolwork and called for researching interdisciplinary relationships therein (Bellon, 2000). Because of the scope of yearly debate topics, connections could be made within debate instruction that also address diverse educational domains such as economics, social studies, and science. The research study described in this dissertation investigated whether technology activities designed for after-school urban debate could be helpful with respect to yet another teaching domain, general technology literacy education.

The findings from this study also serve to provide valuable information and insight for teachers and instructional designers who wish to embed technology literacy activities within culturally informed instruction. This instruction took into account the culture of students and their learning environment to inform instructional planning (Willis, 2000). In addition, the research examined students who resided in urban settings and who were categorized as "at risk" and their interactions with technology supported instruction. While research exists to support technology supported instruction being a factor in positive student gains both in school and out of school (Shields & Behrman, 2000; Roschelle et al, 2000; Goldsmith & Sherman, 2002; Vasquez, 2003), more qualitative approaches are warranted in examining *how and why* this factor is successful in various contexts. This study is a qualitative approach to examining the consequences of technology supported instruction within the context of after-school urban debate.

Terms and Definitions

For this research study, the following terms will be used and are defined as follows:

- Brownfield

Brownfields are former industrial sites that have been closed or abandoned, and are currently not developed; any development would be complex and require considerable financial investment, as many sites have environmental concerns (Wernstedt et al, 2006).

Brownfield is a concept central to this year's debate instruction, which prepares students to debate competitively in weekend tournaments.

- Instructional Design

Instructional design is the systematic design of instruction. To elaborate, instructional design calls for a process to identify what is to be learned and design an intervention (curriculum or product) that will allow learning to take place (Dick, Carey & Carey, 2001).

- Technology

The term technology for this dissertation research includes devices, such as computers, software, the Internet, digital and video cameras; and applicable products developed from using said devices, such as electronic media in the form of websites, student or teacher generated digital content (such as documents, spreadsheets, presentations including audio and video); and products of electronic communication, such as e-mail, listservs/bulletin boards, podcasting and webcasting.

- Technology activities

Technology activities are referred to within the context of this study as activities with lesson objectives that use technology to produce student generated content (such as documents, spreadsheets, or presentations incorporating multimedia) and/or enable electronic communication (such as e-mail, listservs/bulletin boards, podcasting or webcasting) during the course of the activity.

- Technology Literacy

Technology literacy is defined conceptually as the ability to access, use, manage, and communicate with technology (Clinton, 1997). For this research study, demonstrable technology literacy skills corresponding to state-based education standards will be defined as : (a) knowledge of technology, (b) performance using technology, (c) production of a portfolio of completed activities (applying technology skills over a continuous amount of time), and (d) production of a project integrating team-based technology skills (Georgia Department of Education, 2007).

- Urban

The term urban is associated with densely populated, inner-city (as opposed to suburban) neighborhoods with diverse ethnic populations (Benton Foundation, 1998). Urban schools are defined as schools geographically located within a large metropolitan area and serving socially and academically at risk children (Ballou, 1996).

- Urban debate

Urban debate is referred to here as an education reform movement (Wade, 1998; Bellon, 2000) that focuses on using debate coaching and participation in debate tournaments to provide educational opportunities traditionally not available in average inner-city classrooms for students from low socio-economic households—a segment of the population with little representation within most traditional academic debate leagues. The Urban Debate League (UDL) is the national organization for urban debate and operates in conjunction with the National Debate Project, an organization dedicated to providing "a collaborative infrastructure to facilitate the use of debate and discussion as a catalyst for educational reform" (National Debate Project, 2008).

- Computer Assisted Debate

The Computer Assisted Debate (CAD) program is an after-school program based in Atlanta, Georgia, that targets 6th, 7th, and 8th graders who live in federally subsidized housing for participation in after-school sessions and debate tournaments. In addition to promoting public speaking and debate, CAD also seeks to enhance Internet research skills for its students. The Computer Assisted Debate league participates in the Middle School Debate League (MSDL) which was founded in 1998 to assist in building student skills for academic success and reduce vulnerable students' susceptibility to gang membership (National Debate Project, 2008).

Organization of the Study

This dissertation is organized into eight (8) chapters:

Chapter 1: Introduction to the study questions

Chapter 2: A review of relevant literature covering relevant topics to the participant population, and the researcher's theoretical framework.

Chapter 3: An explanation of the research methodology.

Chapter 4: Analysis of the research context, from the ethnographer's perspective

Chapter 5: Analysis of the instructional topic and audience.

Chapter 6: The design and development process for the technology intervention at the center of this study.

Chapter 7: The findings of the research study, framed within the participants' experiences during the technology intervention.

Chapter 8: Discussion of results with respect to the guiding research questions, future research recommendations, and concluding thoughts.

CHAPTER TWO

LITERATURE REVIEW

This dissertation research centers upon inquiry regarding the technology literacy development of students in an urban middle school debate program. This chapter examines subjects relevant to the study and presents topics relevant to the researcher's theoretical approach.

Literature Relevant to Research Participants

The student community in this research study sat at the intersection of three distinct yet overlapping areas of study: (1) Digital Divide, (2) social inequity in education, (3) and technology and middle school students. The following discussion will provide historical perspectives and a summary of relevant research regarding each area of study.

Digital Divide

A social and institutional issue that can serve as a significant barrier where technology is concerned is known as the "Digital Divide." The term "Digital Divide" was first used in the 1990s and was frequently heard during the Clinton administration (Clinton, 1997). The Digital Divide referred to access to computers and access (plus knowledge) of the Internet—and more explicitly the lack of access and knowledge by marginalized members of society in the United States. While things have improved somewhat since initial academic discussions on the subject for all groups, the Digital Divide has not only shifted in terms of definition, but also still persists on different levels to date. Now the Digital Divide more often refers to *home ownership* of computers along with personal subscription to an internet service provider (ISP), and extends globally in scope. Per 2002 statistics (for the U.S.), all minority groups have increased numbers of computer ownership but still lag behind whites. There is also increased Internet usage for minority groups, but outside of the U.S. in developing countries, access to technology is very limited (Gorski & Clark, 2001). Recent information surrounding people in low socioeconomic (SES) households and technology access are not much improved than 1998 statistics for home computer ownership and access to the Internet—which reported that whites outnumbered African Americans on every level (Hoffman & Novak, 1998). While there has been progress in terms of community technology access at public areas, such as recreation centers, apartment common areas, and schools, many public technology exposure efforts were not unanimously received by people because of weak efforts for technology education and adoption for community residents and students (Gorski & Clark, 2001).

Everyone should be concerned about the effects of the Digital Divide and finding ways to address inequities. It is simply not a matter of "haves" and "have nots"—the economic and social state of our country is at stake in a number of ways. Americans have traditionally expressed outrage about social inequity in areas such as education and health care (Benton Foundation, 1998; Kellner, 2001; Kozol, 2005, Darling-Hammond, 2006), but tolerate more inequity in the economic domain, where personal technology is often regarded as an impulse or discretionary investment (Benton Foundation, 1998). However advances in technology are supporting trends that can permit many industries, such as manufacturing and financial institutions, to move their operations from urban to rural areas. Manufacturing operations are being totally reconfigured because of technology, and factory workers now need more expertise with logistics and assembling software programs than skilled labor. While it is well documented that e-mail and online chat are embraced by youth for social networking (Riel & Schwarz, 2002; Ba et al, 2002; Zeller, 2005), many of these youth are not embracing the digital communication and analysis skills now required for many jobs ranging from customer service, social work, and management. For disenfranchised groups, knowledge and access to technology could become vital tools to facilitate community building and seek to empower voices that are traditionally absent from public discourse (NLG, 1996; Benton Foundation, 1998). These points imply that for people to achieve career, economic and social stability, they must have access to technology.

There is no question that significant demographic gaps exist regarding technology, but efforts to provide technology access to excluded groups have not had the widespread success initially predicted. The Digital Divide is less of hardware and materials issue, and points more toward policy and practice. Clark and Gorski (2002) present strategies for solving the Digital Divide. Regarding SES and the Digital Divide, cultural, social and political factors should be addressed. This refers to considering social and cultural barriers, and not solely physical barriers, to low income people regarding technology. Other considerations include political efforts to encompass funding for computer literacy training and IT support, as well as funding equipment and technology infrastructure efforts in low income schools and neighborhoods (Clark & Gorski, 2002). Strategies for closing the racial digital divide include providing more technology access at school and community centers; and aggressively encouraging home ownership and providing technology literacy training, and investment toward teacher technology education in ethnically diverse schools (Gorski & Clark, 2001).

While cultural attitudes, household income, and availability of technology resources all contribute to home access, the Digital Divide is also complicity reinforced within school systems that vary in technology equipment, knowledge and use based on socio-economic differences. Since the student participants of this study attended a Title I school, a school designated as having large concentrations of low-income students, this review will now take a closer look at educational inequality.

Social Inequity in Education

The history of social inequity in education is a long and torturous one, fraught with social and institutional barriers based on class, gender and race. During the land settlement of America, formal education was widely considered only for elite families (Pangle & Pangle, 1993). The Common School Movement in the mid 1800's was the first sentiment of equal education for society being provided by the government (Bowles & Gintis, 1976). *Which societies* deserving of free, equal access to public education, however, was relative. Only sixty years ago, the U.S. Supreme Court ruled in Brown v.

Topeka Board of Education that public education must be equal for all students, and specifically outlawed racially segregated schooling. The laws were not vigorously enforced however, until the mid 1960's with the passing of the Elementary and Secondary Education Act. The ESEA was reborn and revised in 2001, with the No Child Left Behind Act (NCLB, 2002). NCLB seeks to address performance gaps and access to better education choices for struggling students and their families. Unfortunately, urban public schools still bear the weight of social inequities in education as compared with suburban schools today. Thirty percent (30%) of urban children are living in poverty while only thirteen percent (13%) of suburban children are (NCES, 1998)—partly due to a lack of stable, gainful employment opportunities in the city. This lack of economic viability has contributed to the impaired state of urban public schools. Most urban teachers have fewer resources and less control over teaching curriculum than their suburban colleagues (Parker et al, 1998). To put it simply, children and schools in wealthy school districts typically get the larger spending budgets and best qualified teachers, while less wealthy school districts are compromised with restrictive, inadequate budgets and less qualified teachers (Darling-Hammond, 2006). The typical learning environments in urban public schools consist of lecturing to a silent, disengaged audience, stacks of worksheets, repetitive drill and practice, and strict adherence to outdated textbooks. There are little to no opportunities for exploratory and collaborative learning, and employing diverse teaching methods (Darling-Hammond, 2006). Basic necessities in suburban and middle class schools, such as working bathrooms, clean and safe cafeterias, and heat during the winter months, are often considered discretionary expenditures at urban schools due to withering budgets. Kozleski (2006) put it best with:

> When we ignore the context in which children are being educated, where even basic necessities like toilet paper are not provided, and focus our work on increasing performance on tests, we bastardize the entire notion of what an education means. If some children in our country attend schools where light pours in, where playgrounds are inventive places for children to play games they create together, we cannot accept any less for some groups of children. However, too many institutions give children the message that they deserve to sit in classrooms where paint peels off walls, the windows are hung with bars, and their minds are regimented into narrow compartments and filled with information disconnected from the world around them.

Jonathon Kozol's exemplary work, <u>Savage Inequities</u> (1991) gave a stark look at educational injustice two decades ago. In 2005, Kozol authored <u>The Shame of the Nation</u> that provided a follow-up inquiry of this issue, and found that educational inequity in America more or less remains the same. Darling-Hammond (2006) also presents this sobering status:

> International assessments reveal that America's schools are among the most unequal in the industrialized world in terms of spending, curriculum offerings, teaching quality, and outcomes. There is a 10 to 1 ratio in spending between the highest spending and lowest spending schools in the nation, and a 3 to 1 ratio between most states, with rich districts getting richer and the children of the poor more seriously disadvantaged each year (p. 13).

To date, census statistics indicate that African-Americans, Latinos, Asian Americans, and other immigrants comprise the majority of urban city populations, which make teaching among various ethnic, racial and language groups complex (Parker et al, 1998; Darling-Hammond, 2006). Adding to this complexity is the institutional precedent that public schools are filled with teachers trained in conservative professional programs conceived and dominated by white, mainstream administrators who are likely out of touch with urban issues and concerns (Parker et al, 1998; Ladson-Billings, 2006). Many public school teachers have not been given the support and knowledge necessary to successfully teach in urban classrooms (Kozleski, 2006). Kozol (2005) observed many teachers employing a stern, strict, transmissive curriculum that seemed to undermine the natural curiosity and joy of young students. Unfortunately, it seems that student resistance (in the form of failing grades and frequent noncompliant behavior) to this inflexible pedagogy is met with discipline or alternative education referrals. African American males are four times more likely to be placed in special education than any other demographic group (NCES, 2001). Tracking systems, which intend to individualize instruction based on ability, further serve to segregate many failing students—who more often than not happen to be minorities—within schools, and providing less innovative resources to poor achievers more than ever before (Darling-Hammond, 2006). As urban students leave elementary school and move forward into middle and high school, their outlook on learning and scholastic achievement is tainted by unfortunate experiences with the school, teachers, and administration (Kozleski, 2006).

While gender inequality seems to have abated somewhat in the U.S., public schools have become increasingly more segregated by race and class (Kozol, 1991; Parker et al, 1998; Kozol, 2005). These inequalities cannot be left to work themselves out—or the U.S. will face an eventual catastrophic downfall (Parker et al, 1998; Darling-Hammond, 2006; Ladson-Billings, 2006). As a result of social inequality in education, minority and low income urban school students are deemed “at-risk” during their education and once leaving school. Those who do graduate are sometimes at a major disadvantage when competing with suburban students for college entrance, scholarships, and job opportunities (Darling-Hammond, 2006; Ladson-Billings, 2006). Those who do not graduate are part of a growing demographic that have challenges finding unskilled work in today's economy, and are linked to crime and welfare in growing numbers (Darling-Hammond, 2006). In most European and Asian nations, high school graduation rates are around 95%, while American high school graduation rates linger around 75% (Jacob, 2002). Students who are deprived of skilled and competent teachers, school resources, and pedagogy that embraces the unique knowledge they bring to the classroom are essentially disabled from entering the work force and academic institutions (Wade, 1998; Kozleski, 2006). On an individual level, equal educational opportunity based on public schools is the right of every American citizen. Urban schools serving large numbers of low-income, minority students are grappling with state and district policy that provide inadequate funding for classroom and student resources, provide incompetent staff, and adhere to archaic educational programs (Darling-Hammond, 2006).

Technology resources in schools—urban and otherwise—are critical components to teacher development, student skill building, and overall classroom teaching and learning. This review will now examine technology literacy within the middle school context—where the student participants of this study spend a majority of their time.

Technology and Middle School Students

During the 1990s, there was urgent call and response to updating schools with "state of the art" technology. Educational multimedia software and use of the Internet for research and communication was used to supplement traditional instructional methods

(Shields & Behrman, 2000). The congressional acts *Goals 2000: Educate America* and *Improving America's Schools* were instrumental in equipping elementary and secondary schools with technology (Shields & Behrman, 2000). In 1996, *Getting America's Students Ready for the 21st Century* was released as the first national educational technology plan (Clinton, 1997). Supporting federal legislature in the form of *E-Rate*—which specifically introduced technology and communication infrastructure plans and reduced telecommunication rates—funded millions of dollars toward connecting over 70, 000 public schools to the Internet (Shields & Behrman, 2000). Statistical data indicates the percentage of public secondary schools with computers and Internet access jumped from 35% to 95% between 1994 and 1999 (Shields & Behrman, 2000).

Unfortunately, the student exposure to educational technology was not equal across the board. The 1996 National Assessment of Educational Progress (NAEP) report (Wenglisky, 1998) implied that minority middle school students were using computers in the classroom more so for drill and practice exercises, than for problem solving or complex applications (Benton Foundation, 1998). This reflected a disturbing trend of not using technology for rich, authentic, and higher order learning in low SES neighborhood schools (Wenglinsky, 1998; Clark & Gorski, 2002; Young, 2008). These findings ultimately pushed the primary research focus at the time from classroom technology presence and student to computer ratios toward emphasis on use of instructional technology applications and research of instructional factors that directly support increased student achievement (Shields & Behrman, 2000; Kleiman, 2004)

Market statistics document technology spending for schooling reduced by 25% between 2001-2002 and 2002-2003 school years (Technology Counts, 2004). A typical middle school in the U.S. in early 2000s maintains most student technology resources in shared computer labs, and most classrooms had one or two computers (Shields & Behrman, 2000; Kleiman, 2004). It would seem that the unanswered promise of immediate and sweeping educational transformation by technology contributed to this decrease. But technology is also at the center of a sensitive and ongoing debate regarding the best way to teach, and how to measure student achievement (Shields & Behrman, 2000). Many American students are struggling with basic skills of reading, writing and arithmetic, and many educators, policy makers and administrators contend the solution is positivist-centered methods of teaching—drill and practice, classrooms that are strictly controlled, etc. Education professionals on the other side of this argument contend students should be prepared for 21st century skills—with more emphasis on problem solving, higher order thinking, and project based learning (Shields & Behrman, 2000; NLG, 2001). Many teachers employ multiple strategies to teach basic and 21st century skills based on their expertise, classroom resources and support, and student learning styles. These strategies range from positivist to constructivist, and technology could be utilized for most of them. However, the national and state directives regarding standardized testing are causing a dilemma for many schools.

The No Child Left Behind Act (NCLB)—an amendment to the 1965 Elementary and Secondary Education Act—was passed in 2001 in an effort to establish stricter accountability and testing provisions in public education and increase federal support.

NCLB mandates public elementary and secondary schools to make "adequate yearly progress" (AYP) in the form of standardized test scores. For middle school students, NCLB specifically addresses technology literacy achievement as part of AYP. The goal of the "Enhancing Education through Technology Act of 2001 (NCLB Title II, Section 2402, part b) reads:

> "to assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the 8th grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability "(NCLB, 2002).

U.S. public middle schools are required to provide assessment data supporting technology literacy achievement starting in the 2006-2007 school year; however states are individually responsible for defining and selecting their assessment tools and criteria. The Georgia Department of Education (2007) has distinguished demonstrable technology literacy skills for assessment as (a) knowledge of technology, (b) performance using technology, (c) a portfolio of completed activities (applying technology skills over a continuous amount of time), and (d) a project integrating team-based technology skills. Per guidance from GaDOE, each school/district may choose their preferred assessment tool to measure technology skills; a list of recommended tools is provided within the online GaDOE Technology Toolkit (GaDOE, 2007).

Many teachers are compromised by having to "teach for the test" in favor of using more constructivist influenced methods. Technology is often used to drive performance on test scores instead of encouraging the higher order skills necessary for life in the 21st century (Kellner, 2001; Kalzantis et al, 2003; Kleiman, 2004). Kleiman (2004) puts it best as

> In most places we have seen a sprinkling of technology into the curriculum—a program that provides drill and practice within a game here, use of a spreadsheet there, a webquest as a special event, and so on. They represent a first step toward integrating technology into the curriculum, but only a first step. (p. 250)

Kleiman (2004) goes on to argue that further curriculum development is necessary to fully realize the benefits of using technology in the classroom, and to develop innovative educational technology strategies to help kids learn. For example, technology can extend writing classes beyond static printed text, and teach students advanced ways to revise and collaborate with others. Additionally, access to scientific resources and digital tools can provide new ways of teaching science and mathematics.

Scholarly research involving instructional technology and middle school students is promising and yet leaves more questions to answer at the same time. While most research supports technology contributing to increased student motivation (Roschelle et al, 2000; Heemskerk et al, 2005), there are still questions about the relationship between technology and increased student achievement (Shields & Behrman, 2000; Roschelle et al, 2000; Heemskerk et al, 2005). Overall, Shields and Behrman (2000) assert that published research points to positive student gains when utilizing technology for constructivist strategies where success is defined as scope of understanding versus basic skills achievement scores.

The surge of technology investments within school systems did contribute to many studies regarding technology enhanced pedagogy during the 1990s. Boser and colleagues (1998) presented findings regarding student attitudes toward technology within multiple teaching approaches in a nine (9) week period on technology education. The PATT (Pupils Attitudes Toward Technology) questionnaire was given to 155 seventh grade students before and after the nine week technology education session (Boser et al, 1998). The results showed that attitudes could be affected within this 9 week period—with the integrated approach (within core academic disciplines) having the most impact, over isolated technology courses and more traditional approaches--such as technology education within industrial arts (Boser et al, 1998). More intriguing was the fact that most middle school students underestimated the impact technology had on their daily lives and activities, and overestimated the difficulty of technology classes. By the end of the 9 week period however, most students had a more balanced perspective, and felt more comfortable learning about technology (Boser et al, 1998).

Songer and colleagues (2002) reported the results of an eight (8) year cumulative research study of middle schoolers using a technology-rich and inquiry-based weather program. The results reflected that students found science relevant and important, and students performed better using inquiry based methods instead of transmission, positivist influenced methods commonly found within inner-city schools—referred to as the "pedagogy of poverty" (Songer et al, 2002). The study also revealed the institutional and societal barriers that plague inner-city schools:

> Our study has provided evidence that a systematic program for fostering inquiry including the accompanying professional development activities can overcome many of the norms and practices commonly referred to as the pedagogy of poverty, including norms on how science is taught and learned and how technology is used for learning. Although significant learning results occurred in every classroom, we also discovered several persistent barriers to our work, including several cases of inadequate space and materials, inadequate time, low content knowledge among teachers, large class sizes, high student and teacher mobility, limited instructional freedom, and unreliable Internet connectivity (Songer et al, 2002). (p. 148)

Songer and colleagues (2002) contend that more inquiry must be devoted to examining the barriers found in urban classrooms and finding ways to overcome these barriers.

There is research to support that *out of school* programs are also successful in utilizing technology and supplementing school based curriculums for multicultural learners in urban contexts (Young, 2008). The goal of the Martin Luther King, Jr. (MLK) After-school program founded by Harvard University was to provide middle school students with historical lessons tailored to African Americans. Formative evaluation of the program found that student gains in learning were attributed to the technology supported teaching, relevance of lesson context to the students, and high parent participation and support. This was despite little student exposure to technology in school (Goldsmith & Sherman, 2002). One limitation of this study was that socioeconomic information about students and households was not collected, which may have provided more insight on factors contributing to the success of the program (Young, 2008). A study by Vasquez (2003) also highlights examples of out of school opportunities for technology education. Findings from an afterschool program targeting Latino middle school students using technology mediated activities related to Mexican history and culture called for use of reading, writing, and problem solving skills. The program, LaClase Magica, has found success toward improving student academic skills and self-esteem (Vasquez, 2003).

These research examples illustrate student achievement gains and increased student motivation when using technology supported teaching and learning both in and out of school. While the research contexts themselves are unique, all employ a constructivist influence characterized by student engagement, collaborative learning and participation, consistent feedback and authentic real world applications (Shields & Behrman, 2000). Learning activities grounded in a social constructivist approach appeared to work well for these students.

This half of the literature review focused on topics relevant to the student population featured in this dissertation study. The relationship between the topics and students is illustrated in Figure 1:

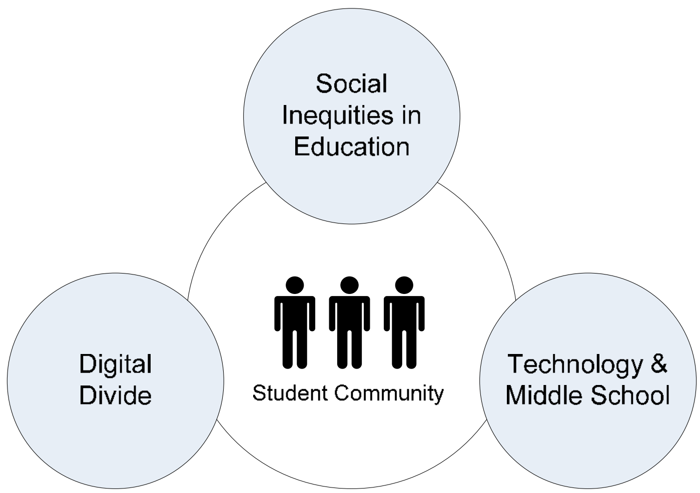

Figure 1: Literature Topics Relevant to Student Participants

The Digital Divide is factored by the households where the students live. Social inequity in education factors in where the students go to school. Technology and middle school gives a closer look within the school/educational context. These first three topics affect the students beyond their control—they do not have a say in where they live, their school zone, or their socio-economic status and race. Understanding all three relevant topics gives a broader understanding of who these students are, where they come from, and what their present and future may look like—without intervention.

Literature Relevant to Theoretical Approach

A discussion of key concepts will provide a lens for understanding the researcher's perspective and approach, inform thoughtful deliberation and development of research methodology, and ultimately provide insight toward the analysis of research findings. Key theoretical concepts framing this dissertation are social constructivist epistemology and teaching strategies, technology literacy, and critical ethnography.

Social Constructivist Epistemology & Teaching Strategies

Constructivism seeks to utilize students' prior experiences and perspectives for self-construction of learning. There can be more than one "right" answer, based on the context of knowledge involved and the student's personal understanding. The teacher is viewed as a facilitator by presenting opportunities for student learning using inquiry based learning styles, in the form of problem based learning or project based learning (Palinscar, 1998), for example. The facilitator then guides the student in the learning process instead of directing the distribution of factual knowledge (Duffy & Cunningham, 1996). Teaching and learning strategies based on constructivist theory have become more popular within traditional and alternative education environments in the past 30 years (Block, 2003; Au, 1998).

Due to the increased diversity of student ethnic populations and student learning styles, the last twenty years have seen a "socio-cultural revolution" (Voss et al, 1995) with a focus on inquiry based learning, social engagement promoting the gain of higher order intellectual skills, and a focus on learning in real world applications (Palinscar, 1998). This *social constructivist* viewpoint is based in the cultural frameworks that support, motivate and distribute learning amongst communities of students in contrast to individual student learning (Cole and Engstrom, 1993; Saxe, 1992; Cunningham et al, 1993).

Social constructivism is based on the research and writings of Vygotsky and centers on the social aspects of learning construction. Rogoff, Matusov and White (1996) presented an instructional model central to a community process of *transformation of participation.* More specifically, both adults and children learn from each other by directing and supporting shared goals. Learning from a social constructivist perspective is considered culture and situation specific, and it is not possible to isolate the individual student from social parameters (Palinscar, 1998). This instruction and learning perspective calls for distinct teaching strategies that have been the subject of intense research inquiry and discussion.

Social constructivist teaching strategies call for rich learning environments, exploratory learning, and authentic assessment (Au, 1998; Palinscar, 1998). While the focus of social constructivism is student directed inquiry, the teacher's role is quite significant. Social constructivist pedagogy calls for teachers to be able to develop and present learning matter in the form of content-specific problems. The teacher then must guide and support the student discovery process where necessary. The best instruction occurs when the discovery process is personally and culturally relevant to the student or class community (Duffy & Cunningham, 1996). Because the social constructive perspective advocates learning and development taking place in collective and cultural contexts, corresponding pedagogy must be tailored and yet adaptable to dynamic changes (Palinscar, 1998). This very nature of social constructivist pedagogy makes it an appropriate strategy for learners of diverse backgrounds and suitable for teaching diverse subject matter domains. Palinscar (1998) puts it best with “As learners participate in a broad range of joint activities and internalize the effects of working together, they acquire new strategies and knowledge of the world and culture (p. 351).” This diverse body of learners is currently the norm in urban school districts tasked with educating increasing numbers of students with multiple ethnicities, languages, and socioeconomic status (Pallas et al 1989; Au, 1998). While traditional subject domains of language arts, science, mathematics, and social studies have different topics and vocabulary, the higher order reasoning and problem solving skills gained through discovery learning are highly transferable, thus students can use skills gained across school classes. One subject domain, literacy (also referred to reading comprehension and writing), has found great success in using social constructivist influenced teaching approaches.

The social constructivist model —sets of criteria used as an instructional framework—advocates forming a strong learning community to promote literacy. (Block, 2003). School literacy learning research conducted from a social constructivist perspective assumes that students need to conduct authentic literacy activities with personal and community relevance (Au, 1998). Social context variables within the classroom community affect literacy by utilizing active reading participation and open dialogues leading to critiques about poems, books, and articles (Guthrie et al 1995). Additionally, social factors within these reading materials can also influence literacy through exposure and knowledge of different activity structures—events and themes within the story (Rogers, 1991; Block, 2003). Research also points to achievement and increased motivation about improving writing skills for children through peer collaboration (Daiute and Dalton, 1993; Palinscar, 1998).

While research efforts to enhance literacy instruction are promising, a new debate about re-defining literacy for contemporary education is well underway. Technology literacy—which calls for knowledge and skills using technology for solving problems and advancing one's learning—is considered as valuable as reading and writing in today's world. Technology literacy instruction using socio-cultural education approaches is the researcher's intended instructional approach within this dissertation study; therefore technology literacy is discussed next.

Technology Literacy

The definition of basic literacy (reading and writing printed text) has served U.S. citizens fairly well for the recent decades of traditional K-12 and post secondary education. However, as times change and necessary skill sets increase to function in society, the need comes to expand literacy skills. The 1970s and 1980s also saw technology trends emerge that would not only impact functional literacy requirements, but also how literacy would be interpreted, learned and taught. This time period is also described as the "technological revolution" (Block, 2003):

> First, because technology replaced the need for thousands of unskilled, illiterate laborers, the choice of just going to work instead of staying in school became less attractive and less feasible. As a result, for the first time in history, high school students could not freely choose the option of not learning to read without tremendous financial ramifications. Moreover, the necessity to read and understand complicated operating instructions for newly created technological devices concomitantly raised the level of functional literacy people needed to survive … a literacy ability at the eighth grade level was required, because directions for personal and professional products are written at this level (e.g., instructions for using calling cards to dial long distance, manuals for Nintendo games and word processing, and employee training manuals for human resource development programs) (p. 39-40).

During the 1980s, advances in computer software programming and commercially available packages introduced many high school students to technology within standard electives, such as drafting, shop, art, and music (Block, 2003). The advent of technology influences upon adult functional literacy—linked to life skills—sharply impacted the relationship between enhanced literacy and professional success (Block, 2003). The whole wide world is not so wide any more due to the World Wide Web (WWW) which allows for expanded freedom of speech and sharing of ideas between people who live next to door to each other, as well as people who are divided by continents. The development, management and support of these information and communication technologies (ICT), including the Internet, all call for various skills in addition to what is known as "basic literacy" (Kellner, 2001; Pearson & Young, 2002). Academic research and dialogue both support the notion that being literate with regard to reading and writing calls for being literate with technology as well, in order to read and comprehend materials online (Topping, 1997; Coiro & Dobler, 2006). Therefore, technology skills are now required for all students of all ages, regardless of field of study or selected professional trade. Compounded by the fact technology is prevalent in so many areas of everyday life, from wireless phones for communication, automatic teller machines for banking and so on, there is a need for a separate literacy requirement. This contemporary requirement, which will prepare people to learn, work and design in traditional and virtual contexts, is called *technology literacy*.

The term "technology literacy" was introduced in 1996 as part of the national education effort "Getting America's Children Ready for the 21st Century" within the Clinton-Gore administration (Clinton, 1997). Technology literacy was defined as the ability to access, use, manage, and communicate with technology. This ability is also referred to in various research publications as *digital literacy* which involves skills necessary to perform tasks and solve problems in digital environments (Gilster, 1997; Eshet-Alkalai, 2004; Eshet-Alkalai & Amichai-Hamburger, 2004), *multiliteracies* which redefine visual, audio, tactile, text, and multimodal (how the first four literacies interact with one another) forms of literacy for contemporary life (NLG, 1996; Kalantzis et al, 2003), and *computer literacy* which encompasses scanning electronic texts and databases, and retrieval of electronic print, graphics, audio and visual media (Kellner, 2001; Pearson & Young, 2002). The labels are somewhat different, but the message—loud and clear—is that technology literacy is necessary to succeed in academic environments, jobs, and with life skills. The national technology literacy initiative mentioned earlier resulted in million dollar investments toward equipping schools with educational technology and corresponding professional development for teachers and administrators. Grants from government and private sources for instructional technology research in schools also proliferated during this time (Selfe, 1999).

There are values and measures regarding technology literacy to enable individuals to successfully function in today's society. The International Society for Technology in Education (ISTE) developed standards for technology literate students with the aid of elementary and secondary schools, universities, and research foundations. Technology literacy standards are similar to school based literacy standards, with competencies developed for age and grade level, with the ultimate goal of preparing students for using technology for productivity, life skills, and lifelong learning (Shields & Behrman, 2000). The 2007 National Educational Technology Standards for Students (NETS·S) have six main subjects pertaining to technology competence:

1. Creativity and Innovation
2. Communication and Collaboration
3. Research and Information Fluency
4. Critical Thinking, Problem Solving, and Decision Making
5. Digital Citizenship
6. Technology Operations and Concepts (ISTE, 2007)

A full listing of NETS·S technology performance indicators for K-12 is featured in Appendix A and B.

Proficiency with and knowledge of technology has now become paramount in elementary and secondary education, with standardized testing common in middle school (NCLB, 2002), high school and during the first year of college (Selfe, 1999). In the years to follow the national technology literacy initiative, the Educational Testing Service (ETS) introduced the Information and Communication Technologies assessment test (now known as iSkills) for colleges and universities. This assessment has spawned a flood of competing and complementary assessments, developed by corporate and educational institutions alike to gauge the level of technology literacy by students in K-12 settings, higher learning institutions, and corporate/work environments (Zeller, 2005).

Technology literacy standards may aggravate disparities that already exist between different segments of society. As more government institutions, community organizations, and corporations shift more resources from traditional customer service communications to online methods for trimmed operating budgets, it stands to reason that groups without technology access and technology literacy will be disenfranchised (Benton Foundation, 1998). The 1996 National Assessment of Educational Progress (NAEP) report contained complex statistics regarding technology equity. Fourth and eighth graders were surveyed to determine the effects of using simulation and higher order technologies for math learning; the data was analyzed controlling for socioeconomic status, class size, and teacher characteristics (Wenglinsky, 1998). For the 8th graders sampled, 33% of African American students, 30% of Asian students, 28% of White students, and 26% of Latino students reported using school computers for math instruction at least once a week (Wenglinsky, 1998). A closer look revealed that more Asian and white students reported teachers using computers for simulations and applications in their classes, while Black and Latino students reported this use at only 14% and 25% respectively. This implied that minority middle school students were using computers in the classroom more so for drill and practice exercises, than for problem solving or complex applications (Benton Foundation, 1998). Further data regarding teachers' use of technology reflected most computer exposure in the classroom was for elective courses—such as business, vocational, and computer education—and not linked to standard core curricula. This trend was more prevalent in low SES neighborhood schools (Becker, 2000). This is rooted in outdated equipment and inadequate teacher training that reserves technology only for drill exercises in these schools, while affluent schools invest training and resources toward technology for complex learning activities, analysis and writing (Benton Foundation, 1998; Clark & Gorski, 2002). A lack of technology literacy also removes groups from active participation online. Clark and Gorski (2002) speak to the online barriers faced by low income citizens—(1) lack of online information about their local community and (2) lack of electronic resources and documents for low-literacy and/or non-English speaking individuals. Those with adequate or advanced technology literacy can demand online improvements and monitor the state of online resources better than those who are not technology literate. For the aforementioned reasons, it is important to act on narrowing the gap and work toward eliminating technology illiteracy for this generation and the next.

Proposing technology literacy is one thing, however, and *promoting* technology literacy for students is another. Technology literacy has numerous and complex implications for teacher education and K-12 education. For teacher education, there must be an effort to embrace teachers who are reluctant to incorporate technology in their respective classrooms (Selfe, 1999). Once teachers are technologically literate themselves, they can better recognize and be considerate of varying levels of technology literacy for their students (Selfe, 1999; Kellner, 2001). For K-12 education, there must be an effort to support and promote appropriate education specific to enhancing technology literacy. Public schools are the best way to introduce technology devices, concepts, and activities to all segments of the population because all U.S. children are required by law to attend (Clark & Gorski, 2002; Shields & Behrman, 2000). Urban school districts in particular serve increasing numbers of students with multiple ethnicities, languages, and socioeconomic status (Pallas et al, 1989; Parker et al, 1998; Damarin, 2000; Block, 2003; Darling-Hammond, 2006). Therefore urban public schools, while not adequate to deliver quality education to every student at the present time, still serve as the most viable environment and opportunity for leveling the educational playing field.

Because these learning environments have so many variables (known and unknown), complex structures and cultures—qualitative research approaches are an ideal strategy to better understand these environments and develop solutions toward providing equal education opportunities. Critical ethnography, which is the selected research methodology for this study, is discussed next.

Critical Ethnography

Ethnography deals with the investigation and documentation of events relevant to participants in their natural environment (Bernard, 2002). Ethnographers study culture in order to describe the environment and participant's experiences in-depth for other audiences. Critical ethnography not only studies culture, but also knowledge and action. According to Thomas (1993), "Critical ethnographers describe, analyze and open to scrutiny otherwise hidden agendas, power centers, and assumptions that inhibit, repress, and constrain (p2-3)." Critical ethnography is a subset of traditional ethnography. As a research methodology, ethnography is grounded in qualitative data collection and interpretation. However, critical ethnography seeks to use knowledge gathered and subsequent analysis to invoke social change. Typically, this analysis is applied to emancipate or reduce negative influences upon oppressed participants featured in the ethnography.

Critical ethnography surged in popularity within education research during the late 1960s and early 1970s (Anderson, 1989). Significant critical ethnographies include *Learning to Labor* (Willis, 1977), *Ways with Words* (Heath, 1983), and *Black American Students in an Affluent Suburb* (Ogbu, 2003). Willis' landmark ethnography described the transparent rite of passage of working class neighborhood boys from "lad" to "man", and illustrated classic social reproduction theory since there was a consistent stratification repeated from schools for the working class to a factory workplace (Willis, 1977). Other theories featuring prominently in critical ethnography studies within education include cultural production (Levinson et al, 1996) and performance theory (Alexander et al, 2005). All education research ethnographies share an examination of the structures, complicit and defined, that support educational contexts and systems.

A subset of educational ethnographies qualify as participatory action research. Participatory action calls for the researcher to advocate a positive change of the community members while researching the community—with the positive change defined and developed in collaboration between the community and ethnographer (Reason, 1994; Kozaitis, 1997, Barab et al, 2007). If the goal of critical educational ethnography research is to improve education for participants involved--then the participants must be involved in the development of the innovation, intervention or socio-cultural change proposed. These participants include students, teachers, staff, and parents. Kozaitis (1997) advocates this stance:

> For significant changes in school culture to reach teachers and students and to be implemented, the changes must be brought about through a participatory process. Establishing and maintaining a participatory process requires a subtle understanding of the current organization of the school culture and the ability to draw on resources and agents for change from within that culture. Working from the strengths of the institution--rather than crashing into the institution's barriers--not only validates and empowers students, teachers, staff and parents in the school community but also leads to the sustainability of social change (p.285)

Advocates for student educational success must consider a holistic view of the learning context which includes students and families, along with school teachers, administrators and staff.

This second half of the literature review provided an examination of social constructivist epistemology, which I believe will be the most successful teaching approach for the faculty and students involved in this study. The discussion of technology literacy provided a framework of knowledge and skills that literate citizens should have for today’s society. This framework was used to inform the technology activities for the urban middle school debate students. Critical ethnography was featured in this literature review to provide a rationale for why I used it for this study. In order for the proposed culturally informed technology intervention to be effective, I plan to work with the primary stakeholders--CAD students and faculty.

Summary

This review highlighted some of the connections between the Digital Divide, social inequities in American public school education, and the uneven use of technology as it relates to middle school education—connections that surround the student population at the center of this research study. Without active intervention, social inequalities with regard to education, and more specifically, educational technology use, will continue to restrict learning opportunities for urban school students and serve to reinforce racial and socioeconomic disparities regarding technology practice. Successful technology supported learning interventions (a) should include using available technology for rich, and authentic learning experiences and teaching higher order skills, and (b) would be able to empower students and teachers, while supporting achievement of technology literacy.

My understanding of the research problem at hand when I began my doctoral work led me to an examination of social constructivist epistemology, technology literacy, and critical ethnography. Social constructivist epistemology supports the belief that meaning is constructed by learners within a social or collaborative context, which was also noted within my observations of CAD sessions during the pilot study. I used this theoretical underpinning along with technology literacy to inform the instructional approach and objectives desired for intended technology curriculum I would design. Critical ethnography informed my research approach, which had evolved from the traditional ethnography I performed during the initial pilot study.

In summary, this dissertation research seeks to address dearths in scholarly literature regarding, (1) developing innovative educational technology strategies to help urban kids learn and (2) contribute toward literature examining instructional strategies within urban debate. Presenting technology supported learning activities tailored for an urban debate program as a strategy for teaching technology literacy skills is the critical agenda proposed in this research. This research is one step now in an effort to head off future reports of urban students being yet again disenfranchised by achievement benchmarks—this time in the form of technology literacy. A qualitative methodology was selected for research in this area because statistically-based quantitative methods cannot provide the whole picture regarding "how" technology literacy is taught (Berrett, 2001). Surveys may provide rich information on student and teacher perspectives, but these perspectives should be validated (or contradicted) with thorough classroom observation of experiences and activities, and analysis of artifacts—which are classic qualitative methods. The next chapter will discuss the research methodology for this research study in detail.

CHAPTER THREE

RESEARCH METHODOLOGY

Traditional instructional design and technology (IDT) research was borne out of psychology and behaviorism (Jones et al, 1998). Student behavior was observed before and after an instructional intervention, and performance was statistically measured to be better, worse or remain the same. These observations were documented within a carefully controlled environment, most often a laboratory or artificially constructed space, instead of an actual classroom or native learning environment. Today's complex instructional problems and situations call for IDT solutions that encompass understanding more than an educational technology product and/or intervention, but also the learner, student peers, instructor, environment, curriculum, and institution. This research effort seeks to provide an intervention to assist with technology literacy development for an academically challenged population. This calls for an examination of the context and participants, and the cultural frameworks inherent.

Description of Research Context

The Computer Assisted Debate (CAD) program began in June 2004 and was initially sponsored by Atlanta Public Schools, Atlanta Housing Authority, Emory

University, Georgia State University, TechBridge, and the Boys and Girls Club. CAD targets 6th, 7th, and 8th graders who live in federally subsidized housing for participation in after-school sessions and weekend debate tournaments. CAD sessions are held twice a week after school. CAD promotes learning skills such as “on-line research gathering, the construction of persuasive oral arguments, the effective use of Power-Point presentations, and strategies for critically analyzing various policy and value claims” (Computer Assisted Debate, 2007). The afterschool sessions are led by faculty and college students from Emory and Georgia State universities and employ a combination of mock classes, small group activities, intensive one-on-one coaching, and visits from guest speakers. CAD students elect to participate in weekend debate tournaments within the Georgia Middle School Debate League (MSDL). Although middle school debate is not as prevalent and established as high school debate, the Middle School Debate League was founded in 1998 to assist in building student skills for academic success and reduce vulnerable students’ susceptibility to gang membership (National Debate Project, 2008). The MSDL serves all middle school debate programs and allows for CAD students to compete against debaters in mainstream programs.

Since CAD’s inception in 2004, the program has grown from one to four middle schools. During the 2005-2006 school year, a record 184 students participated in CAD. A quantitative assessment report (Winkler, 2008) covering data collected from the inaugural CAD middle school stated reductions in reported absenteeism, reduction of communication apprehension, and reduction of disciplinary referrals; and an increase in reading comprehension scores for pre-and post testing. Survey feedback reported confidence in debate participation as being a positive influence on students' behavior, conduct, and conflict resolution skills. The report concluded that it seems CAD students enjoy the art and community of scholastic debate, and they are committed to being successful in the program.

Research Goal & Guiding Questions

For this dissertation, I researched urban middle school students within the Computer Assisted Debate (CAD) program community and their use of a given set of culturally tailored technology activities. CAD enlists middle school students who live in federally subsidized housing programs to participate in after school programs that strengthen public speaking, debate, and Internet research skills. A program goal of CAD is to improve reading and communication skills, but other potential benefits include higher self-confidence, as well as improved research, technology, and literacy skills. The goal of this study was to design culturally informed technology activities for urban middle school debate students and then observe the consequences within this after-school community. The guiding research questions are:

1. What occurs in a CAD program community when an ethnographic approach to instructional design is implemented?
2. What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?

Instructional Design Process: ADDIE

Instructional design is the systematic design of instruction. To elaborate, instructional design calls for a process to identify what is to be learned, and to design an intervention (curriculum or product) that will allow learning to take place. Subsequent steps call for measuring learning to determine if learning objectives were met, and then refining the intervention until those objectives are met (Dick, Carey & Carey, 2001; Seels & Glasgow, 1998). There are many instructional design models to choose from, but a generic process can be extracted from most of them (Hannum & Hansen, 1989, Seels & Glasgow, 1998): A-D-D-I-E (Analysis, Design, Development, Implementation & Evaluation). The ADDIE process is featured graphically in Figure 2:

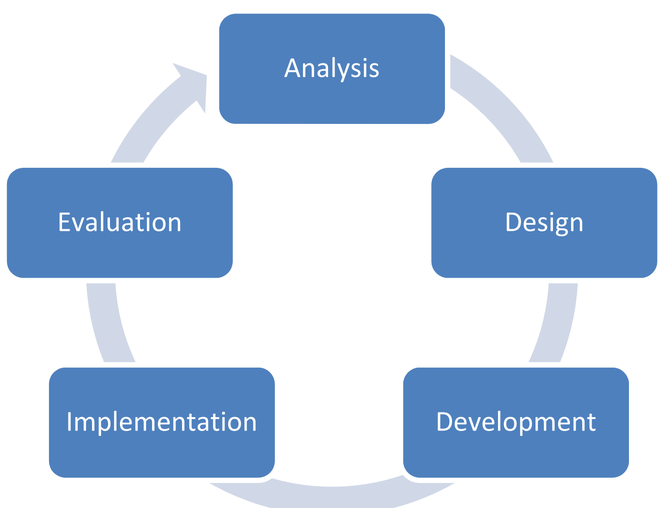

Figure 2: ADDIE Instructional Design Process

The first step, *Analysis*, calls for the instructional designer to understand the learning problem/achievement gap at hand, and familiarize herself with the learning subject matter, learners, and learning environment. The *Design* step is marked by taking the information gathered during Analysis, and relying on expertise in instructional theory and methodology to design how the learning subject matter will be taught. The third step, *Development*, is where the learning materials conceptualized during the Design phase are "authored, reviewed, produced, and validated" (Seels & Glasgow, 1998, p. 12). The review efforts and revisions at this stage are also known as formative evaluation. The next step, *Implementation*, is where the instructional designer guides the use of the developed learning materials in practice. *Evaluation* is the final instructional design step, where the impact of the intervention for teachers and students is determined. This effort is considered summative evaluation.

Qualitative ID Research Model for Urban Contexts

The qualitative research methods used in this dissertation informed the instructional design of the technology activities. My skills and background in instructional design were influential in developing a technology curriculum for this CAD community of students and faculty. Seels and Glasgow state the role of an instructional design researcher "is to build knowledge about steps for development of systematic instruction. The role requires identifying questions that need study, planning a project that will yield information, conducting such projects, and reporting project results "(1998, p. 25). For this urban context, I employed the research model illustrated in Figure 3.

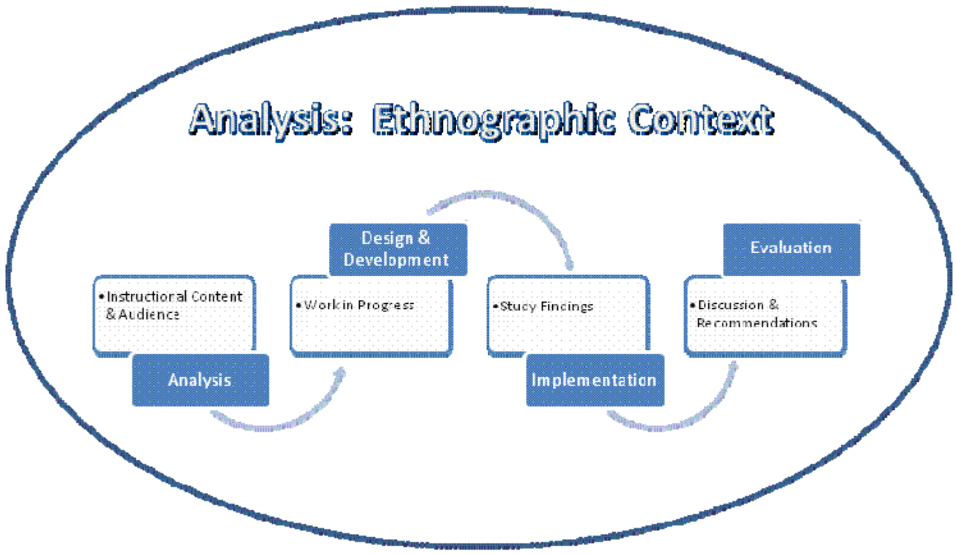

Figure 3: QID Research Model for Urban Contexts

The Qualitative Instructional Design (QID) Research Model has two separate but equally important phases of Analysis. An analysis of the ethnographic context of the learning environment is critical to understand the complex dynamics often present within urban education contexts, such as CAD. Understanding the context from an ethnographer's point of view will help to inform all of the remaining QID phases. The ethnographic context analysis should continue throughout the course of the research undertaking. Analysis of the desired instructional content and intended audience is next, followed by Design and Development (as one phase). Implementation and evaluation follow similar to the conventional ADDIE instructional design process. The next section will provide a compelling argument as to why qualitative, and more specifically, critical ethnography research methods, were used in conjunction with a traditionally behaviorist instructional design process for this dissertation study.

Rationale for Critical Ethnography Methods

Using a qualitative approach and critical ethnography methods, this study sought to describe student experiences during a purposefully designed technology intervention within an urban middle school debate program. A qualitative methodology was chosen because it provides an expressive, narrative description of a social or human issue within a natural setting (Creswell, 1998). The goal of this qualitative researcher was to study issues in relation to circumstances of this unique environment—with the intent of producing results that may be amended for other environments with similar actors, settings, and challenges. Interpretive studies are focused on identifying how participants make meaning with a phenomenon or particular situation and presenting such findings descriptively (Merriam, 2002). This study is considered interpretive because it seeks to understand interactions, experiences, and meaning constructed by middle school students regarding technology literacy as they engage with instructional technologies within an urban debate program.

Ethnography deals with the investigation and documentation of events relevant to participants in their natural environment (Bernard, 2002). Critical ethnography goes one step further, to use the information gained from the investigation to empower participants, and invoke social change (Thomas, 1993). The context for this study is an urban middle school debate after-school program. The critical agenda of this researcher is promoting technology supported learning activities designed for an urban debate environment as a strategy to develop student technology literacy and reduce social and technology inequities associated with the Digital Divide and public education. The time boundary for this critical design ethnography was seven (7) months during the scheduled after-school sessions. This is my second research experience with the CAD student community; a pilot ethnography was conducted prior and provoked my interest in studying this environment further. The following section is a summary of the pilot research experiences.

Pilot Study Overview

A four (4) month pilot ethnography was conducted within a CAD program community from February – May 2006. The research questions investigated (1) student beliefs and attitudes toward Internet research, and (2) any impact CAD had on student digital and information literacy. For the pilot study, digital literacy was conceptually defined as task and problem-solving proficiency in digital environments (Gilster, 1997). Information literacy was investigated as a subcategory of digital literacy—and defined as one's ability to critically evaluate and understand information found online (Eshet-Alkalai, 2004). Student level of digital literacy was operationally defined for the CAD pilot ethnography as (1) observing and recording student behaviors during Internet research activities (as opposed to comments for student beliefs and attitudes) and (2) having students evaluate Internet information with regard to authorship, validity, and purpose. Observations and interviews were the primary data sources. The observations (and subsequent notes) allowed for documentation of the kids' interaction with the Internet for debate research. The student interview themes included computer access and Internet use, habits of using print versus electronic materials, preferences for using print versus electronic resources for debate, and critical evaluation of Internet resources. The research sought to investigate at risk students' ability to evaluate the validity of information found on the Internet and the impact of debate. While the intended topics of student beliefs and critical evaluation of Internet resources were explored and discussed, the data results also depicted the challenges CAD students and faculty had with acquiring and using reliable technology equipment and using technology on a regular basis (Bryant, 2007).

Based on observations, the younger students or new participants experienced "culture shock" in the form of learning proper debate terminology and definitions, tournament etiquette, and becoming knowledgeable about topics that are beyond their neighborhoods and personal experience. It was clear, however, that the longer students stayed with the CAD program, the better they became at communication and self-expression. The student I interviewed who had the most years in CAD was very proud of his involvement, and also showed stronger digital literacy skills than his peers. While CAD participation could not be attributed as the sole factor in development of digital literacy for these students, the contribution appeared to be significant and deserves further investigation (Bryant, 2007). My question after this study became: if this community had access to instructional design for a tailored technology curriculum, what could they accomplish? This pilot research provided fertile ground for the dissertation research study and procedures that are detailed in the following sections.

Dissertation Procedures

Site Selection

The dissertation research site was located at a different, yet comparable (to the pilot), middle school within a large urban public school system in the Southeastern U.S. This is because the middle school featured in the pilot study has since closed because the building had been deemed unsafe, and students were routed to new, single gender schools. The newly constructed schools have gender-specific learning environments and more technology resources and materials than the initial pilot environment. The selected research site and the pilot site share similar neighborhoods, student and teacher demographics, and technology/academic resources.

Participant Selection

The purpose of this study was to design culturally informed technology activities for the CAD program, and then observe the consequences of these activities within the CAD community. The two main groups within this community are students and faculty.

CAD Students

The CAD program students are the main participants and benefactors of this research. The student participants for this critical ethnography included 6^{th}, 7^{th}, and 8^{th} graders who attend the CAD after-school sessions. Purposive sampling (Bernard, 2002) was used to first target students who regularly attend the CAD activities. The CAD program is structured such that any child can attend after school sessions. Students can attend the sessions at any time, and are not penalized for spotty attendance. They are not "forced" to actively participate—in fact, some just attend for the snacks at the end and idly standby as others engage in the learning activities. This research purposely selected students who regularly attended the after-school CAD activities and elected to participate in weekend debate competitions. Once those students were identified by CAD program administrators and faculty, convenience sampling (Bernard, 2002) took place. The convenience sampling took into account the small percentage of students whose parents or guardians sign consent forms at the beginning and the end of the school year—a necessity if any of the student's information was to be used for research purposes. Students who participated in all four research interviews numbered eight (8), although daily session attendance numbers averaged around 12-15, and 49 individual students signed the roll during the course of the school year. It may be likely that the small number of consent form sets collected (compared to student attendance numbers) was due to challenges at home facing this unique student population.

Most CAD students are African-American and come from low socioeconomic (SES) households. Atlanta Housing Authority (AHA) records from 2007 show married couples residing in their communities are in the minority (Suggs, 2007). Students prior to CAD involvement have poor school performance, frequent disciplinary issues, and lack of interest for pursuing higher education (Winkler, 2008). These students ultimately go on to participate in their school debate teams—competing against each other and schools across the state of Georgia. The CAD students are also regarded as "urban debaters"—which carry possible influences because of cultural norms. Urban debaters—described as inner city minority kids—have risen from virtual nonexistence to tens of thousands since the Urban Debate League formed in the early nineties (Hoover, 2003).

A complete composite of student participants is featured Table 1 below.

Table 1: *CAD Student Participants*

Pseudonyms	Gender	Grade
Princess	F	7
Ponch	F	8
David	M	8
Sasuke	M	6
*Oscar	M	8
Professor	M	6
Rico	M	8
**Pooh	F	7
**Joi	F	7
**Kelly	F	7
**Jennifer	F	8
**Sandra	F	7
**Donald	M	7

* Latino student

** These students are mentioned in Chapter 7 with respect to session observations and student artifacts, but did not participate in research interviews.

All of the students are African American except for one Latino student (Oscar). Seven female and six male students participated in the study.

CAD Faculty

CAD faculty are volunteer and paid staff who work as instructors/mentors to the students during the school year. Faculty assume several responsibilities, such as working with student group activities during the afterschool sessions, supervising students during weekend tournaments, and serving as resident counselors during the summer debate institutes on local college campuses. CAD faculty range from past CAD students (who have gone on to high school but return to work with the younger students) to seasoned debate and education professionals with graduate degrees. The majority of CAD faculty who worked with the afterschool sessions were juniors, sophomores, and graduate students from Georgia State University and Emory University with academic backgrounds or personal interests in debate and communication. CAD faculty embody a diverse portrait of ethnicity, with individuals reporting as white, African American, Hispanic, Asian, Persian, and Sri Lankan. It should be noted that substantial information about CAD faculty was not collected within the scope of the initial pilot study, but their role in this community was recognized at that time as obvious, influential and important—therefore CAD faculty were factored in as a significant part of the current dissertation research study. The number of CAD faculty who participated in this research study was six (6). Fifteen individuals served as CAD faculty for the research site at least once during the research time period, however, the six selected attended the most regularly, attended the faculty training for the technology activities, and were present pre-and post-intervention. The table below illustrates the diversity present among the CAD faculty participants that did not appear within the CAD student population.

Table 2: *CAD Faculty Participants*

Pseudonym Initials	Age	Race/Gender	Highest level of Education	Full time Job	Years in CAD
BO	25	BM	BA, Political Science & Urban Planning	bank customer service manager	2
EF	28	WF	BA, Business	university program accountant	4
FB	19	WM	High School	Full-time freshman college student, CAD volunteer	0
RM	26	WM	BA, History; MA, Education	social studies teacher and debate coach for private middle school	4
TD	66	BF	BA, English	university program administrator	4
QT	32	BM	BA, Political Science & Speech Communication; MA, Communication (in progress)	community outreach director & university debate coach	4

Three faculty identified themselves as White; three faculty identified themselves as Black or African American. The age range for faculty was 19 to 66 years. Faculty also had a variety of academic knowledge based on their majors in school, but all shared a love for debate and debate instruction.

Data Collection Instruments & Sources

For this critical ethnography, qualitative descriptive data was collected with participant observation, document artifacts, surveys and interviews. The following specific data sources are identified for this research: field observations of students and program faculty during CAD sessions, student artifacts from technology supported activities and traditional activities (that do not use computer technology), video footage from the technology activity days, transcripts from student, program administrator and faculty interviews, results from the Technology Proficiency Survey of program faculty, and student responses from a Technology Literacy Assessment.

The researcher collected data per the following timeline below:

Table 3: *Research Activities Schedule*

Date	Research Activities
November 2008-May 2009	Field notes composed two days a week Student artifacts collected two days a week
November 2008	Faculty Technology Proficiency Survey administered
November – December 2008	Interview 1 conducted
January – February 2009	Interview 2 conducted
February 2009	Student Technology Literacy Assessment administered
March – April 2009	4 video sessions recorded Interview 3 conducted
May 2009	Interview 4 conducted

Field observations were conducted twice a week over the seven (7) month research period—there were forty-six (46) field notes in all. Field notes also extended beyond the after-school sessions to monthly CAD faculty meetings. Eight (8) field notes describe session cancellations for administrative reasons (a Field Note Legend with synopsis is featured in Appendix C), leaving thirty-eight (38) field notes for data analysis. Student crafted artifacts, such as short reflective writing exercises, were also collected weekly—an example is provided in Appendix D. Video footage from the four technology activities days were evaluated and documented using a video log (example in Appendix E). Student and facilitator interviews were conducted over the seven (7) month research period. The Technology Proficiency Survey was administered to program faculty at the beginning of the research period to inform subsequent faculty training. The Technology Literacy Assessment was administered to students prior to the technology curriculum intervention to understand their prior level of technology skills and knowledge.

Research Instruments

The research instruments for the proposed inquiry were constructed or selected to best collect data about the participants and the phenomenon under study. The interview guides for students and faculty were used in conducting semi-structured interviews. For semi-structured interviews, the interview guide contained questions and topics that the researcher covered in a particular order, while leaving the respondent free to follow or broach new topics during the discourse. Using an interview guide also supported extracting reliable, comparable qualitative data from respondents (Bernard, 2002). The interview guides were reviewed by CAD program administrators to ensure the language and terminology was appropriate for the middle school students and CAD faculty respectively.

Faculty specific research instruments consisted of the Reflection, Evaluation, and Feedback (REF) sheets and Faculty Technology Survey. The REF sheets are an internal evaluation of CAD session activities, and completed by faculty after every session. The Faculty Technology Survey was adapted from the General Preparation Performance Profile and the Professional Preparation Performance Profile assessments developed by Shoffner & Dias (2001). The profile assessments were based on NETS·S standards for pre-service teachers, and employ a Likert scale response and general short answer questions. The General Preparation Profile covers overall technology knowledge that pre-service teachers should know early in their program of study; the Professional Preparation profile covers technology skills teachers should be proficient with prior to their first professional entry into a classroom (ISTE, 2008; Shoffner & Dias, 2001). Because CAD faculty are from diverse educational backgrounds and possess a wide range of professional skills, an assessment of general and professional technology skills for educators was deemed appropriate. Space was also allotted at the end of the survey for respondents to expand on their comments--from the "emic" perspective. The results from the Faculty Technology Survey were used to inform the faculty training regarding general technology skills and the culturally informed CAD technology activities.

The CAD Student Questionnaire, and Technology Literacy Assessment are research instruments that were used exclusively for the CAD students. The CAD Student

Questionnaire is given to students at the beginning of the year by CAD faculty. The Technology Literacy Assessment was adapted from two commercial assessment tools: K to the 8th Power and Learning.com. Both assessments are featured on the Georgia Department of Education's Technology Literacy Toolkit as "products and strategies that can be used to address student technology literacy" (Georgia Department of Education, 2007). K to the 8th Power was used for technology literacy assessment at the research site location for the entire student body in 2006; Learning.com was used there in 2007 (GaDOE, 2008). K to the 8th Power has been adopted as part of technology curriculum by the Idaho State Department of Education (2007) and Florida Department of Education (2006). Learning.com has been used in North Carolina and Washington state (learning.com, 2008). This implies both products have been tested for measuring student technology literacy. The questions from the assessments were selected because they addressed general knowledge about technology and corresponding tasks that middle school students should be familiar with. The results from the Technology Literacy Assessment will be used to add to the description of the phenomenon and participants in this study.

Ethics & Data Confidentiality

With regard to ethics, there was a consent form (for parents/legal guardians) and assent form (for students). Both forms were composed at appropriate reading levels and provide informed consent about the research within the existing IRB protocol (H07439) for research with the CAD community through Georgia State University. An amendment for this dissertation study regarding technology literacy was approved in September 2008. The study participants' names were kept private and pseudonyms were used for notes, transcriptions, surveys and the final report. CAD students were requested to select a first name pseudonym, and CAD faculty selected initials as a means of identification. A key linking the names with pseudonyms and initials was kept secure and maintained by the researcher. The researcher digitally recorded the interviews. The print interview transcripts were kept in a secure, locked location at the researcher's home, and the digital audio files were destroyed upon the study completion. Qualitative data (field notes and artifacts) were entered into an Excel spreadsheet. Quantitative data (technology survey responses and technology literacy assessment scores) were also entered into an Excel spreadsheet. All data spreadsheets and transcripts feature participant pseudonyms and initials.

Role of Researcher

Gaining entry and access to a community is a pivotal part of conducting any qualitative research (Bernard, 2002). My prior pilot study with the CAD program helped me to establish rapport with the current program administrators and faculty. For this critical design ethnography I volunteered at CAD for the duration of the seven (7) month research period to be qualified as a "participant observer" (Bernard, 2002). While the CAD faculty provided the majority of instruction, I provided technical support, monitored student activities, and modeled technology skills and applications during sessions.

My education and career has also shaped my perspective. My doctoral studies focus on instructional design and technology, which gave me expertise in curriculum design and technology supported teaching and learning. I have also worked as an instructional designer, a technology support consultant for middle school teachers, and multimedia faculty at a higher learning institution. These experiences have provided me with a holistic view of education--which involves students, teachers, and the community at large. I am not an expert regarding urban debate or debate instruction in practice, so assuming a participant observer role contributed to my understanding of debate as a teaching/learning context.

I was the only CAD volunteer staffed at Irving Butler who attended both session days every week. As a result, the students became very attached to me, and I became similarly attached to them. Any researcher bias would come from a sincere effort to enhance the students' learning experience and technology exposure (for academics) as much as possible.

Data Analysis

There were two distinct phases to the data analysis. The first phase took place between November and December 2008, and served to inform the design of technology activities. Data was openly coded to reveal salient and emergent themes, using Miles and Huberman (1994) as a guide. First, field notes from the CAD after-school sessions were coded and labeled. The field notes were chosen as the starting point because this captured both student and faculty behavior and dialogue during the CAD sessions. All notes were labeled until there was nothing left; these labels were collapsed into categories, and then the notes were coded again to verify the categories held true. A code label notebook was composed with definitions. Next, the remaining data (artifacts, questionnaire, survey, and interviews) were coded using the initial code label list. The rationale behind this order was that the field notes captured both CAD faculty and students in their natural context, making the field notes highly transparent. All participants were doing things within regular CAD sessions without self-consciousness. Artifacts in the form of written work from the students would be next in terms of transparency. The remaining data sources (questionnaires, surveys, and interviews) are all self-report forms of data. Self-reported data may be subject to posturing, i.e. participants saying what they think the researcher wants to hear. Figure 4 depicts the open coding data process.

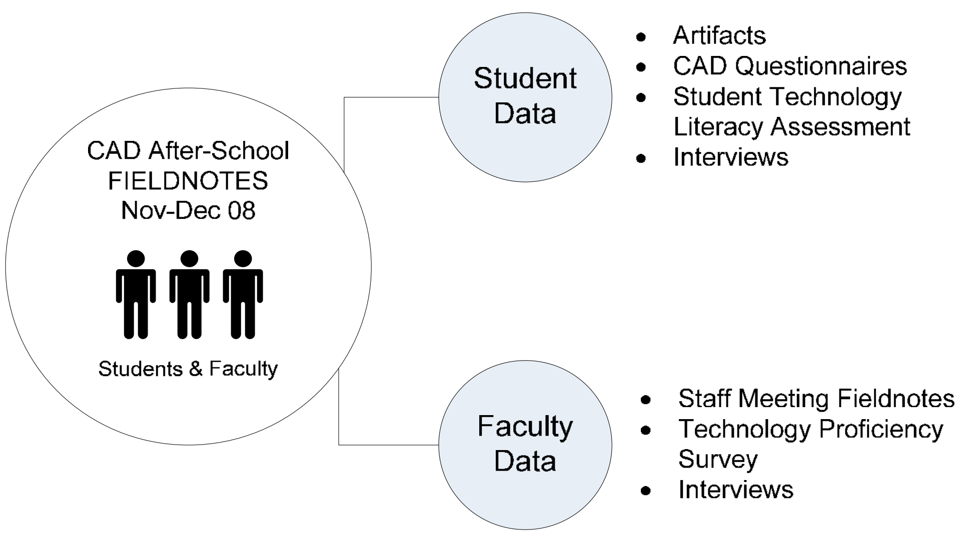

Figure 4: Data Overview for 1st Phase of Open Coding

During the first phase code labels were placed in categories. These categories were then used to inform the design of the technology activities (discussed in detail in Chapter 6).

The second phase of data analysis took place once the CAD sessions ended in May 2009. Focused coding took place using the data collected from January- May 2009. Both guiding research questions were used to develop the coding labels. Table 3.2 represents a mapping of data collection and analysis back to the guiding research questions for the 2nd data analysis phase.

Table 4: Mapping of Research Questions and Data Coding

Research Question	**Data Source**	**Code and categorize data for evidence of:**
What occurs in a CAD program community when an ethnographic approach to instructional design is implemented?	• Tech Activity day Video • Field notes • Student interviews • Facilitator interviews & REF sheets • Tech Activity Student artifacts	• any demonstrated student technology literacy during technology activities • students using technology at school, using technology in CAD compared to school (post-intervention), feedback about technology activities • faculty technology experiences during CAD sessions and their observed student interactions with technology (post-intervention).
What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?	• Field notes • Student interviews • Facilitator interviews & REF sheets • Tech Activity Student artifacts	• any variable levels of demonstrated student technology literacy (post-intervention) • students' self reported technology competencies, preferences or attitudes regarding the technology activities (post-intervention) • faculty perceived student technology competencies, preferences or attitudes regarding the technology activities (post-intervention)

Trustworthiness

Trustworthiness is a term used synonymously with validity in qualitative research circles (Creswell & Miller, 2000; Bernard, 2002). Simply put, any academic researcher must verify that their investigations are credible. Trustworthiness measures how accurately participants are portrayed and their account of the social phenomena being studied is collected and presented (Creswell & Miller, 2000). To this end, I employed the following strategies to preserve validity throughout this research process: (1) commitment to prolonged engagement in the field, (2) development of a thick description, (3) an audit trail record, and (4) use of triangulation.

The first strategy of prolonged engagement in the field supported validity on many levels. Prolonged engagement of the researcher helps build trust and rapport with participants, and permit them to be transparent in their day-to-day activities that are documented. Conversely, the researcher spends enough time engaged in the field that she will ultimately learn community nuances and subtleties that may be lost on a casual visitor (Creswell & Miller, 2000; Bernard, 2002; Thomas, 2003). These nuances and subtleties observed ultimately enriched the investigation. Creswell and Miller (2000) assert "…. prolonged engagement in the field has no set duration, but ethnographers, for example, spend from four months to a year at a site." The proposed study took place within a 7 month timeframe. Developing a thick, rich description is inherent to critical ethnography methodology, and serves to create a multi-layered accurate description of the research environment, participants, and events. The fine level of authentic detail included in a thick description is necessary to create verisimilitude—"statements that produce for the readers the feeling that they have experienced, or could experience, the events being described in a study" (Creswell & Miller, 2000). This description of the ethnographic context is featured in Chapter 4 of this dissertation.

The next strategy of establishing an audit trail speaks to documenting and preserving the research inquiry as it unfolds. In addition to study data (referenced earlier in this chapter), the researcher maintained a research log (example presented in Appendix F) that chronicled relevant observations and events, along with data collection and analysis procedures. I also kept a personal journal during the investigation to privately disclose perceptions, puzzlements and any bias (Bernard, 2002). The research log and journal were invaluable contributions to this audit trail, and provided assistance while writing the last dissertation chapters. The audit trail can also provide evidence of rigor and permit the dissertation advisory committee to systematic review procedures if warranted (Creswell & Miller, 2000).

Triangulation of methods refers to employing multiple and diverse data sources to identify themes or categories within a study (Creswell & Miller, 2000; Bernard, 2002). I developed a preliminary plan of analysis for the study, featured in Table 3.2. It should be noted that articles from the audit trail, such as the research log and personal journal, were reviewed against the research data.

Issues with Data Collection

Two data collection issues developed during the course of this study: (1) transient participants; and (2) session schedule irregularities. Student attendance was very random. I could not establish a regular interview schedule with them, or collect consistent samples of their work. The CAD sessions were at the mercy of school administration and faculty volunteer schedules. Many sessions were canceled at the last minute, or planned research activities had to be postponed to accommodate other required teaching activities. As a result, I became very flexible in scheduling the CAD technology activities and corresponding interviews with students. Some interviews were combined to take advantage of the student's attendance that day—because it was not guaranteed the student would return to CAD.

Summary

There is a lingering disconnect between IDT research & practice (Jones et al, 1998; Driscoll & Dick, 1999; Wang & Hannifin, 2005; Reiser & Dempsey, 2007). It is now more important than ever that IDT research should be thoughtfully applied to solve well defined educational dilemmas in distinct instructional environments. There is also a need for socially responsible IDT research (Jones et al, 1998; Roblyer & Knezek, 2003; Reeves et al, 2005)—where data, analysis and recommendations are shared with participants in an effort to improve quality of life. The question of technology use vs. non-use should be put to rest, and academics should investigate how can technology support and enhance education in the 21st century and beyond. In doing so, consideration must be given toward equitable use and expanding educational opportunities for all, especially disenfranchised and excluded communities.

The research effort described here is an attempt to bridge the fields of IDT and the social science of ethnography. While many instructional design practitioners employ ethnographic field research methods, these efforts do not qualify as authentic ethnography in many design circles (Anderson, 1996). The missing pieces for many studies are thick description, coding, accounting for bias, and interpretation of the results. Anderson (1996) frames this in a clearer view by stating "Ethnography is not a way of finding out but a way of writing up." This dissertation researched the impact of technology activities within a urban middle school debate student community. Critical ethnography research methods informed my design of culturally informed technology activities for the CAD program, and my observations of the activity consequences for this community. This research ideally contributes towards (1) development of innovative educational technology strategies within urban contexts, and (2) academic literature examining debate instruction—all while providing rich instruction and practical local resources to a challenged yet thriving urban debate community.

The next four chapters will consist of distinct portrayals for interpreting and presenting the data. Chapter 4 is a description of the ethnographic context, the 2008-2009 Irving Butler Computer Assisted Debate After School Program, which provides the frame situating the study, and the contextual analysis within instructional design. Chapter 5 takes a closer look into analysis of the instructional topic and intended audience. Chapter 6 is a description of the intervention design and development process to generate the Tech Day activities, specifically seen through the researcher's lens. Chapter 7 details the research findings, based in the participants' experiences—which describes the Implementation step of this instructional design.. Finally, Chapter 8 will provide evaluation of the instructional design, with discussion of the results with respect to the guiding research questions, recommendations for future research and concluding thoughts, respectively.

CHAPTER FOUR

ANALYSIS: ETHNOGRAPHIC CONTEXT

My interest in this dissertation topic began with a pilot study I conducted at Clark Davidson Honors Preparatory middle school in 2006. It was my initial hope to remain at Davidson for my dissertation research; however the school was in the process of closing during 2008. Because CAD services multiple schools, I was able to conduct my research at Irving Butler Middle School, which carried many similarities to the pilot environment (discussed in Chapter 3). This chapter is dedicated to the ethnographic context of this study by richly describing the surroundings, faculty and students that together constituted the Irving Butler Computer Assisted Debate (CAD) after-school learning environment. This description is included to convey verisimilitude—"statements that produce for the readers the feeling that they have experienced, or could experience, the events being described in a study" (Creswell & Miller, 2000). This chapter also serves as a robust contextual analysis, which is part of the Analysis stage of ADDIE process guiding this instructional design. All described events are taken from my observations during the after-school sessions, which were written up as field notes.

School History

Irving Butler Middle School has a resilient history, and was originally a high school in this large urban Southeastern U.S. public school district. The name Irving-Butler reflects the merging of Irving High and Butler High in 1995. In 2002, an area middle school merged with Irving Butler, and from then on the school focused on teaching grades 6-8. The school itself is surrounded by tree lined streets with azaleas and compact, brick homes. Other communities served by Irving Butler include diverse forms of government supported housing and a home for abused and neglected children. While the communities and neighborhoods are diverse, the student demographics are quite similar. The student body numbers around 800; and ninety-nine percent is African American. The remaining one percent is mostly Hispanic. About ninety-five percent of the students are eligible for free lunch. Irving Butler also has a long record of being an underperforming school. Adequate Yearly Progress, also known as AYP, is the benchmark for a successful public schooling institution under the criteria of No Child Left Behind (NCLB). Since 2004, Irving Butler Middle School has yet to make AYP (Georgia Department of Education, 2010). These achievement scores, along with the demographic statistics make Irving Butler comparable to the school I observed during the pilot study. My experience at Irving Butler was quite different, as I spent more time there and was more active during the after-school sessions than at Davidson Middle. The remainder of this chapter chronicles what I encountered.

The First Day of After-school CAD

The weeks leading up to after-school debate at Irving Butler were fraught with impatience and uncertainty. The program, which usually starts in September, began this year in November due to funding and administrative difficulties. At a staff meeting in September, it was noted that grant funds dedicated to CAD would not be released until late October. In addition, fuel prices nationwide rose to unprecedented highs, and as a district cost-cutting measure, school buses were not available to transport kids home from any after-school activities, including CAD. Without transportation, the majority of kids did not have another option for getting home (FN 002, 2008).

On the first day of the CAD after-school program at Irving Butler, I was running late due to traffic. Upon arriving, I stopped at the school main office to ask where debate was being held. At that moment, the Irving Butler teacher sponsoring debate came into the office. It turned out, thankfully, the young woman was an acquaintance of mine I knew through a neighborhood hair salon--she had worked as the receptionist there part-time while attending college. I hadn't seen her in the 2 years since she had started a full-time teaching career. I was grateful to see a face I already knew in this new after-school debate environment. She helped me navigate the sea of kids running, screaming, singing, shoving and standing still in deep conversation all at once in the hallways. Once we made it to her classroom, the CAD faculty was there, still in the process of making introductions. I was quickly introduced as Ms. Dana, "a college student who would be taking notes here from time to time—don't really pay her any mind." The kids eyed me up and down as I found a desk at the back of the room.

The CAD Classroom

The room itself was as traditional and neat as possible. Fluorescent lights shone over rows and rows of desks, with barely enough room to move around in between. It was obviously a language arts classroom, with posters emphasizing punctuation, sentence structure, and overall encouragement of scholastic success (FN 004, Nov 2008). Posters around the room said things like "If you can't change something, change your attitude," and "Fall up 7 times, stand up 8 times." (FN 009, Nov 2008). As I took notes, I would glance up to find one or more kids sneaking a glance at me. The CAD staff on that day was seasoned regulars; 7th and 8th graders who had done debate the previous year bantered easily with them about the year ahead. The debate resolution for 2008-2009 was *The United States federal government should substantially increase alternative energy incentives in the United States*. This year, debate students would focus on topics such as alternative energy, environmental pollution, and Brownfields (former industrial sites that have been closed or abandoned). The 6th graders, other brand new students and I gave off an air of uncertainty. That first day was the last day, however, that I felt really like an outsider at Irving Butler after-school debate.

CAD provided a constant for kids every Monday and Thursday. Kids could come in and expect activities related to 6 debate teaching areas: public speaking, reading comprehension, writing, debate tournament procedure, speed reading, and flowing (note taking during a debate speech/round). I was not privy to any formal, documented debate curriculum, but as an educator, these distinct lesson areas became apparent to me after a few weeks. The kids, however, saw debate as a place to express their opinions and thoughts, and were blissfully unaware of the “school-teaching” going on. CAD faculty engaged the students with consistent, planned, and structured activities (FN 002, 2008).

CAD Teaching Strategies

The after-school debate sessions seemed to follow a natural progression. Basic debate fundamentals were introduced, or for some students, refreshed. The faculty took care in framing debate in very simple concepts the middle schoolers could follow. First, faculty made the distinction between "arguing" and debate "arguments." A debate is not the place for a verbal assault type argument, with yelling and screaming. Rather, debate is a dialogue between two people with opposing arguments on a specific issue. Faculty also pointed out though, that if you can argue in a civilized way—with your parents, siblings, or friends—then you have the skills to be strong in debate. This seemed to give every student the initial confidence to continue (FN 005, Nov 2008).

Another key aspect of debate is the use of evidence. An evidence packet is provided by the national debate organization for students to follow. The packet contains the resolutions, and supporting rationale for both the affirmative and negative arguments—or simply, why to argue for or against the resolution. Part of debate instruction and preparation includes students reading this evidence, and then researching in order to collect more. For tournaments, debaters are allowed to consult and refer to their evidence packets during rounds. The faculty present this to the CAD students as debate being like an open book test, twenty four hours/seven days a week. The kids are amazed and intrigued by this aspect (FN 009, Nov 2008).

Faculty also make it clear that you have to spend time reading the evidence, practicing your speeches, and listening to other's speeches. While this is the hard work, everyone—no matter grade, GPA, or school—is capable of doing so. This is especially important as debate is usually associated with well-to-do private schools and suburban students. CAD students are considered urban, and Irving Butler is considered a low SES, underperforming school. Debate is presented as a means to equalize the equation, but only if you work hard. CAD faculty reinforce the notion of "train your brain" for debate. They present research stats that support "Your brain can process up to 500 words a minute, but this is a skill that has to be taught"—so anybody with a brain (despite test scores or background) can train for using this ability for debate (FN 010, Dec 2008). The early CAD sessions are devoted to creating a learning environment that promotes students feeling confident and capable in their abilities, which may challenge their notions of self, community and education up to this point.

Use of acronyms

The debate training served two purposes. In the short term, the regular reading, writing and public speaking exercises prepared students for the Saturday debate tournaments. For the long term, however, the training gave students academic skills that they could apply in other classes. The use of mnemonics to remember information was a recurring theme in the afterschool CAD sessions. One of the first faculty presentations was the "Who ARE U" exercise. While the activity served as an icebreaker for students and faculty to introduce them to the group, it also presented the acronym A-R-E. A-R-E stands for Assertion, Reason, and Evidence--all key terminology in debate culture (FN 004, Nov 2008). Another frequent reference was "the 5 P's"--usually "Proactive, Prepared, Punctual, Positive, and Persistent." The P words were always changing—never the same five each time—but always relevant to the situation at hand, whether poor performance at debate, a low score on a math test, or being late for class. Sometimes the faculty could not recall all the P's either, and it turned into a brainstorming session for the students to come up with a P word to fit the situation (FN 012, Dec 2008). A third popular acronym lesson was 2PAC. This was a reference to the legendary rapper/poet Tupac Shakur. In CAD, however, 2PAC meant knowing there are two (2) ways to communicate: verbal and non-verbal. This was an important lesson that conveyed how your body language and appearance may communicate something without your intent. The other keys to being an effective communicator are: presentation (P), audience (A), and content (C). In other words, be aware of how you present yourself (which can also take into account verbal and non-verbal communication), communicate in a way that will appeal to your audience, and have content/evidence to back up your assertions (FN 008, Nov 2008). These learning acronyms helped students digest the comprehensive content they received every week.

Use of popular culture/current events

For many students, the process and structure of debate communication and tournaments were unfamiliar to their experiences at school or home. CAD faculty recognized this and strived to make new concepts relevant and relatable by referencing popular entertainers and events. An example included a mock debate depicted on the board, with Debate Team 1 as rapper TI and pop singer Alicia Keys against Debate Team 2 of R&B singers Chris Brown and Keyshia Cole. The CAD students absorbed the required back and forth of affirmative and negative rounds readily, where a debate tournament worksheet given weeks before was marginally effective (FN 010, Dec 2008).

Faculty also posed questions about current news and events on a regular basis. This served to connect current events to the debate topic, and also expose students to what was going on in their communities, state, nation, and the world. I was struck by how desensitized many students were to violence, war, and conflict at home and other countries. But their interest was stirred by many seemingly low-key events. One particular session featured a news pop quiz with questions regarding the U.S. government bailout of domestic automakers, President Obama's nomination for Secretary of State (Hillary Clinton), and City of Atlanta budget cuts (FN 020, Feb 2009). The most vigorous discussion revolved around how (1) Clinton and Obama—once Democratic Presidential Nominee opponents—would be able to work together now, and (2) the city budget cuts included temporarily closing many recreation centers in student's home neighborhoods. It proved to be an effective teaching moment, in terms of how Clinton and Obama vigorously debated during the election, but outside of the debate could be professional colleagues—and in comparison, students while competitively debating on Saturdays, can be friends and classmates at school during the week. More sobering, however, was the realization that if students had not attended debate that day, they would not have known about the City of Atlanta recreation centers scheduled to close until they came upon a locked door at one of their favorite (and safe) places away from home. The value of keeping up with local news hit home for the CAD students that day.

Safe environment to learn

Another aspect of CAD afterschool sessions was giving the students a safe place to learn. Not only was it a physically safe and chaperoned space, but a location that encouraged learning and making mistakes from which they also learned. Children were encouraged to try new things, and flex their learning potential everyday. They were allowed to practice debate topics of their choosing (for and against school uniforms, lowering the voting age, Burger King versus McDonalds?) in preparation for the Saturday debates about alternative energy sources and government policy. CAD faculty acted as judges to prepare them as to what to expect within a formal debate tournament. Specific feedback was given regarding their speech delivery and tone, but also toward subtleties like not talking to your teammates between rounds, and organizing evidence notes before rounds to keep from "shuffling stuff around" and being distracting (FN 018, Jan 2009). Even critical comments were laced with supportive suggestions for improvement. Also, CAD faculty always embraced any question as an opportunity to expand knowledge. No one was made to feel embarrassed by any lack of knowledge. One assignment called for reviewing the debate evidence to highlight words you did not know—or that did not make sense in the reading context. This activity was usually requested as homework, and at the next meeting the group would review all of the unfamiliar words together without embarrassment. Students could help each other make sense of the exotic terminology. CAD after-school sessions were a time and space that utilized respect, learning, and voice all at once.

A Constant CAD Interruption

Despite the best efforts to make CAD a conventional learning space, at times it resembled a rowdy camp. One aspect that contributed to this chaotic atmosphere was the school public announcement system. First came an unmistakable, jarring signal tone, followed by mostly rude and condescending voices delivering school-wide messages. Announcements were made frequently during the 2 hour CAD sessions—shattering teaching moments—and providing an abrupt reminder why respect within any learning environment is important. While the announcements were for the benefit of any students and faculty remaining afterschool and generally provided important, timely information—the tone was decidedly patronizing and unpleasant. Children were advised daily to line up on the 5:30 pm bus immediately, under threat of being "left up at school in the dark" (FN 007, Nov 2008). They are told sternly that any horseplay or similar antics will not be tolerated. Another day students who remained for CRCT (statewide, standardized testing) tutoring were told not to be caught anywhere (in the halls) except their classroom or there would be severe consequences. This day in particular caused a CAD faculty member to remark "this school seems to have a prison mentality atmosphere—despite the well kept building, and variety of extra-curricular activities offered over Davidson (pilot school/research site that was deemed structurally unsafe)" (FN 025, Feb 2009). I could not agree more.

Although the PA messages were not encouraging, they were powerful. One day in particular was a testament to this. This day I gave the CAD students the technology literacy assessment for the dissertation study. We were about 20 minutes into the session, with students quietly thinking about and recording their answers, while I read the questions out loud. The PA signal sounded, and the announcement was that Computer Assisted Debate was canceled, and would not be held today. The faculty and kids present, as well as I, were stunned. The announcement requested that the debate kids report to another after-school program. The Senior CAD faculty member present jumped up and raced to the office. I assured the kids that they should stay, and we continued with the assessment. A few more kids arrived later, surprised but happy that we were there. After the session, the faculty member returned and relayed what prompted the puzzling announcement. A frustrated teacher made the announcement to drum up numbers for her technology centered after-school activity. She was embarrassed at being caught and apologized but said if her attendance numbers did not improve, the activity (and her additional pay) would be canceled. After this incident, I asked some of the students if the PA messages during the school day were better than the ones after-school. The general reply was “not really” (FN 020, Feb 2009).

My Role as a CAD Constant

I inherently contributed to the CAD after-school routine and structure by being the one staff member who attended both days of the week. The late start of CAD had not only impacted the middle school students, who were behind in participating in the regular debate season, but also impacted the staffing schedule for CAD faculty. Since most faculty were college students, if CAD had started at the beginning of the public school calendar and college academic calendar as usual, faculty would have been selected on the basis of availability to the CAD school; and session days not conflicting with their own class schedule. The fall semester was already underway however, staff came when they could, and they had conflicts with attending both days of the Monday/Thursday schedule. Some of the students did not like having new faces work with them from week to week. One boy asked me directly "Why you keep bringing somebody new every week?" (FN 011, Dec 2008). I attended regularly though, and I soon became the go-to person for any number of things. *Are we even having debate today?*—as sometimes unforeseen traffic delays would tie staff up on the way. *Are we talking about Brownfield stuff today, again?* I handled student requests for aspirin, Kleenex, hygiene products, change, etc. I also listened and learned a lot about students and their lives outside after-school. I heard about sick relatives, estranged parents coming to visit, household members losing jobs, arguments with teachers, and 8th graders' anxiety about moving to high school next year. On Valentine's Day, I brought candy for the kids, and they all claimed to be my "Valentine" (FN 024, Feb 2009). The kids seemed to respond well to my regular attendance. I would be greeted regularly with warm hellos and hugs. Students would proudly show me their school pictures, and I signed many yearbooks at the end of the year.

I also became a valued resource to CAD faculty, as I made connections between current and prior lectures where appropriate. One example consisted of when students seemed to be struggling with a ThinkWrite topic. I made a reference to a corresponding example discussed in the previous CAD session. The students quickly understood, and the faculty present was appreciative for my contribution. Many students also trusted me with their paperwork and permission slips, as they knew I attended each session, and would make sure the information got to the right authority. I also served occasionally (along with other CAD faculty) as back-up transportation for taking students home when buses left early, or failed to appear.

Debate as Constant with Transient Students

The safe harbor after-school debate provided was a boon for the kids, because many came through like a "revolving door" as one CAD faculty put it. This was significantly different than my experience at Davidson Middle School, where debate was a favorite among few after-school offerings. At Irving Butler, there were sport team practices (football, basketball, cheerleading, and soccer) that many kids had committed to when school started back in August. Other after-school offerings included step team, cheerleading, majorette (which shared the same sponsoring teacher as debate) and band. Those students hurriedly came for the last 30 minutes once the other activity was over. In the Spring, student attendance was even more sporadic due to preparation for CRCT standardized testing. Because of low test performance in recent years, tutoring was mandatory if students were lagging in specific subject areas, and this tutoring took place during the after-school time. Many students simply vanished from Jan-March; once CRCT testing was over, our debate attendance swelled again.

Other kids' participation was more random. One student took a particularly long hiatus with no warning; once she returned and we caught up, I found out that she was coping with the unexpected death of her aunt, to whom she was very close. She actually had been out of school for all those weeks. Other students I would see loitering in the hallway after the final bell—I would ask them if they were coming to debate today. They would reply, "Nah, my mom won't let me stay" or "Ms. Dana, I just can't concentrate any more today, I'll come next week." Three or four students who were coming regularly at the beginning suddenly disappeared midway though; I later found out that they all had been individually suspended from any after-school activity as a disciplinary measure for conduct during the school day. In another example, a 6th grader new to debate came faithfully for the first few months. I learned she attended regularly because debate was her "in-school suspension" because of disruptive behavior. She actually found out that she was good at the debate activities. She even attended the first tournament in December and did well. Unfortunately, she never returned for the new year because she got in trouble the last day of school (before Winter break), and the principal banned her from being on school grounds after the regular school day. Many CAD faculty lamented that the debate sessions were probably what the kids needed most if they were acting out during school—if it's taken away, what new mischief could they now get into from 4-6pm? (FN 015, Jan 2009) Outside students (not participating in debate) also sauntered in and out during the sessions—which I found more disrupting to the sessions than anyone else. The CAD faculty and students were used to people walking around and voices talking over each other—despite the chaotic appearance, meaningful teaching and learning were taking place. Kids were retaining information session to session, and week to week. Some kids were overcoming communication apprehension by improving public speaking skills and writing short essays. Other kids demonstrated a significant improvement in reading aloud.

Debate as a Window to the World

After-school debate provided a window to the world that reflected and reverberated with events going on at a local and global level. For example, the presidential election and subsequent victory of Senator Barack Obama proved to be a thrilling and inspiring process for the kids. This man of color, raised by a single parent, provided them a glimpse of what education and hard work could provide to others with humble beginnings. The kids, especially the boys, were quite proud after the November elections (FN 007, 009, 010, 2008). One CAD faculty member attended the January presidential inauguration and when he returned, the kids settled down quickly and listened eagerly to his account of the experience. This faculty member told them Barack Obama *verbally* fought to get to the White House--and won. Words are powerful, and you (students) can have that same power (FN 018, Jan 2009).

The state of the U.S. economy and record numbers of unemployment, especially in the Atlanta area, later became a sobering reality in spite of the historical presidential election. The unemployment rate for Atlanta was 8.6% and 9.3% for January and February 2009 respectively--compared with a rate of 4.1 % a year earlier. The consequences on city and state budgets were staggering. While CAD staff tried to engage the students by requesting they keep up with different news reports, the news that struck a nerve was that several City of Atlanta recreation centers were closing temporarily due to reduced funding. These recreation centers were well known and beloved to these students in depressed communities.

Another issue the nation was facing was a widespread public health threat--a salmonella outbreak traced to commercially produced peanut butter. This really hit home with the CAD kids because some of their favorite snack items (provided at the end of every session) were peanut butter crackers, granola bars and cookies. Since I worked full-time in a large private university's School of Public Health, I became the closest expert. This led to an impromptu lesson in salmonella and food preparation practices. I told the kids that we weren't serving any recalled items, but they would not be chastised for choosing not to eat the peanut butter snacks. A few went ahead and ate the snacks, but most were distrustful--saying, "that's how they want to get rid of us" (FN 016, 018; Jan 2009). Soon, the CAD staff simply disposed of the peanut butter snacks all together. None were purchased for the remainder of the year.

Two well known and idolized Pop music celebrities, Chris Brown and Rihanna, caused a stir in our CAD sessions although their actions occurred across the country in California. In February, Chris Brown was arrested for physically assaulting Rihanna during an argument after the Grammy Awards. The press coverage was extensive, from the rumor of the initial assault, to the confirmation and subsequent arrest, to graphic photos of Rihanna (post-beating) being leaked on the Internet. Unfortunately, these 11-13 year olds were not naive to the idea of domestic abuse, and had lots to say about the subject. Many chose sides and the subject spawned many heated discussions, and the topic was used to teach the concept of rebuttal arguments within debate (FN 023, 024, 025; Feb 2009).

Debate as a View Closer to Home

While the kids debated passionately about varied topics (whether about Rihanna or Brownfields)--the family and community aspects of debate always prevailed. The faculty and AUDL administration provided structure and support for the kids, and this transferred into the student-to-student interaction. After the first tournament, what began as informal debriefing turned into students calmly censuring each other in a mature fashion. Some new students at the Saturday debate tournament decided to act out of order and be disruptive. On Monday, the older students quickly told them "we won't have you representin' the debate team and school like that again "(FN 012, Dec 2008). The faculty reaction of surprise and pride could not be contained.

CAD also provided a safe platform to try something new. Besides the close-knit regulars mentioned above, there were many students who dropped in through the year, only to return maybe once more, or never again. One student whose visit was memorable we will call Arnold. Arnold obviously had a close rapport with one of the established debaters and came at his friend's urging. Arnold was also obviously bright, but rejected any activity that called for him to be the center of attention (public speaking, for example). His behavior/acting out in response to seemingly benign requests for participation was unusual for his age. Faculty tried to engage him in casual-get-to-know you conversation, and I suddenly realized that he was a boy at the center of a child abandonment case that had been broadcast all over the national and local news. I quietly and quickly made the lead faculty aware of this, and he said "Well, no matter, who he is--he will have some fun and learn something today." And before long, Arnold seemed to let his guard down, and did have fun in after-school debate that day.

Another outside event impacting debate was the attempted abduction of a female student walking to school one morning. The attempt was interrupted by the school security officer; there was no harm to the student; and the perpetrator was caught and arrested. However, the school administration canceled all after-school programs that day (CAD included) to address worried parents and staff. When CAD met a couple of days later, we had a group discussion about being safe and aware of your surroundings, and not going off with strangers (FN 037, March 2009).

CAD Students

The students who attended the CAD after school program during the course of the year ranged between 6th – 8th graders, and had a variety of personalities and interests. While attendance was recorded, student performance was not evaluated, and some kids early on thought debate would be an easy activity to sleep in until snack time. These students were in for quite a surprise, because if you came for debate, new person or senior debater, you had to participate in the activities on some level. Students either liked this level of engagement or not. After a few weeks, it was apparent the kids who returned regularly were motivated and engaged in after-school debate. These students even found a way to balance other after-school commitments with debate. Kids sweaty from athletic practice or toting band instruments would slide in and join Thinkwrites or group discussions in progress. Other kids would pop in at the beginning to inform faculty of a test or make-up work they had to complete, but promised to return before debate ended at 5:45pm. When surveyed during CAD as to why they came to Debate, student answers ranged from "I like to argue" to "I don't know, got nothin' better to do." One young lady, however, replied " I'm smart, and then I'm NOT smart, you know? But I KNOW I'm smart here [debate]—but it just doesn't show all the time. Here it does." (FN 018, Jan 2009)

The CAD students were amazing. This year was complex. In addition to puberty and other social concerns common in middle school, these kids were coping with moving to new homes because of the city of Atlanta Hope IV transition. Adolescent concerns such as body image, fashion and romantic daydreams went hand in hand with moving out of apartments into single-family homes, attending schools in a new district, and leaving the only home some of them have ever known. They managed many challenges on a daily basis, but their love and affection for debate staff and CAD was genuine. As one faculty member put it " they are like palm trees, they bend but don't break" (Faculty Interview 1, 2008).

Students were generally agreeable to anything requested of them--including testing and evaluation assignments. They were comfortable with observers (me included) and outsiders coming to the sessions. One visit toward the end of the year from Department of Justice (DOJ) staff was particularly interesting. The DOJ was a source of grant funding for the Atlanta Urban Debate League, which is the parent organization of CAD. DOJ staffers wandered in and out, dressed in suits, taking notes on the status of their investment, and watching the kids like this was some exotic experiment (FN 034, March 2009). The kids continued on with their regular debate activities, and just acted like kids! I was amazed and encouraged at their indifference and comfort in their own skin. This is because, as faculty often reminded students, debate is their time and space—they owned it.

CAD Faculty

The adults involved in teaching after-school CAD at Irving Butler all shared one thing—a love for debate. The faculty ranged from mid-career professionals, to first year college students. They possessed varying maturity levels, academic majors of study, and leisure interests. The volunteer aspect of teaching for CAD also contributed to floating staff for several schools. Despite the personal and schedule differences for faculty, they were undeniably a close knit group. This could be attributed to the strong measure of faculty support by the Atlanta UDL administration. The administration recognized the urban public school environment and students would be radically different from educational experiences of the majority of their faculty. Most of the faculty attended middle class and affluent high schools and colleges that could support traditional debate teams. (FN 002, Sept 2008).

Because many CAD faculty floated between different middle schools, and their teaching styles were diverse, this meant even though the debate instructional curriculum was fairly constant, the dynamic of CAD sessions were almost never identical. This dynamic was also markedly different than the structure of regular classes during the school day. The students seemed to like this "out of the box" teaching, and some complained of the strict nature of their regular teachers in comparison with CAD faculty. Some faculty also felt the school staff was harsher than necessary, but seasoned faculty would always advise that while "we have them for 2 hours, the other teachers are with them 6 hours, all day." CAD faculty were always instructed to take a neutral stance and not take sides in any teacher-student conflicts, but lend advice to students about ways to compromise and take "intellectual" control of these situations.

I noted that some faculty acted as parent/guardian figures with the kids. One faculty member gave a harsh yet motherly scolding one afternoon when it seemed kids were more interested in who could shout louder than the veracity of their arguments. Her talk about how "discipline means someone loves you and gives a hoot about your behind" diffused the disruption. Some faculty were members of athletic teams and leagues, and engaged students by doing push-ups in the hallway and running in place to "work off energy" if students were being disruptive. Once they returned to class, the students were notably calmer and ready to focus on the lesson at hand. Another faculty member was known for his "man-to-man" chats. By addressing the males as young men instead of boys, and requesting they display corresponding mature behavior, stopped many squabbles between classmates during afterschool time.

The faculty was very protective of these kids. True, they pushed them to read (well beyond some students' tested levels), write, and speak, but faculty were sometimes uncomfortable with the idea of assessment. One faculty member said, "some of them do so poorly on tests. We don't want to give them a double dose here" (FN 002, Sept 2008; FN 009, Nov 2008). CAD faculty was also patient and positive regarding the required permission slips. Everything is framed in a context to help the students learn better, have the faculty teach better, and improve the CAD program overall. There are numerous permission/consent forms within a "Welcome to Debate" packet, but there are also warm greetings and supportive messages for parents and participating students. These extra steps spoke to the protective and nurturing approach of the debate faculty.

Surprisingly, the faculty was very supportive of my presence and data collection. I believe this was for several reasons. While they bristled at assessment that produced a score, my work was not based in numbers. The qualitative nature of my research appealed to them; plus one senior faculty member had completed a masters' thesis using similar methods two years before, so they were used to it. Also, I had spent time volunteering and completing my pilot study the year before, so I was not a stranger to their world. Most importantly, the faculty was enthusiastic and generally optimistic about the technology activities provided to enhance their teaching.

Conclusion

My experience with the CAD afterschool debate program at Irving Butler Middle School was truly compelling and I will never forget it. The dynamics of working with the students and faculty demonstrated many successful teaching moments, and the flexibility and awareness to recognize and recover from mistakes. I attended the CAD after-school program at Irving Butler middle school twice a week from November 2008-May 2009. I spent November and December simply observing and becoming part of the debate community. January and February were devoted to developing and preparing for implementation of the technology activities. The activities were implemented March to May. The next chapter will provide a detailed account of the analysis of the instructional topic and the intended participants (students and faculty) for the anticipated learning experience.

CHAPTER FIVE

ANALYSIS: INSTRUCTIONAL CONTENT & AUDIENCE

This chapter will focus on the *Analysis* phase in the instructional design process, with particular emphasis on the anticipated instructional content and desired audience (students and faculty) for the intervention at hand.

Analysis

For the analysis stage, four main tasks are involved: needs assessment, task analysis, instructional analysis, and learner analysis.

Needs Assessment

Needs assessment deals with defining the instructional problem at hand (Seels & Glasgow, 1998). In this case, the results from the pilot study (Bryant, 2007), current study data in the form of field notes (October 08-January 09), and faculty interviews (1 & 2) revealed the following issues: (1) Although the program name "Computer Assisted Debate" alluded to use of technology, very little technology was being utilized, due to shortage of resources.

> *Ah, we haven't used computers as much as the, either our name alludes to, or as much as we would like, ah, and that has been largely predicated on the lack of resources at the schools. … Um, and the lack of ah, consistent, predictable access ... either they don't have access to the computers, or either when we do, it's been problematic ....but in any type of formalized way, we've been challenged in that way to provide that level of instruction. (QT Faculty Interview 1, 2008)*

(2) In spite of this fact, the majority of faculty wanted to use technology more during the afterschool session.

> *[desire to use technology] ... yeah, it would be awesome though, because debate is such a natural marriage with technology learning. Well I mean, it's--in fact in my magical world of wish lists, I'd--If I could, I would probably do a lot more online activities with them more, or research based activities, um, because debate has a lot of websites that are geared toward kids finding out research about topics, and I would definitely show them that--and we would give them a debate topic and research it and then have a debate about it, that would be my best of worlds.... (EF Faculty Interview 1, 2008)*

This reaffirmed my stance that a technology curriculum was desired but conspicuously missing. I also felt faculty were so caught up with "day to day" debate lessons, it would be potentially overwhelming for them to develop an additional technology curriculum on their own.

Task Analysis

Task analysis for instructional design calls for identifying and defining the lesson content for the desired instruction (Seels & Glasgow, 1998). The desired tasks defined for the technology activities were derived from the Georgia Department of Education definition of demonstrable technology literacy, which encompasses (a) knowledge of technology, (b) performance using technology, (c) production of a portfolio of completed activities, and (d) production of a project integrating team-based technology skills

(GaDOE, 2007). These demonstrable efforts would count toward technology requirements for 8th grade technology literacy in the state of Georgia, and CAD technology activities should promote students' competency of these efforts. In addition to promoting public speaking and debate, a published objective of the CAD program is to *enhance Internet research skills for its students.* This objective dictated that the technology activities developed for afterschool debate should focus more on Internet searching and web page/content comprehension than basic, introductory computer skills.

Instructional Analysis

Once learning tasks are selected, the next step is instructional analysis. What type of learning is necessary to achieve the learning tasks? Is there prerequisite knowledge involved? (Seels & Glasgow, 1998). Since the primary objective would focus on Internet based research, the prerequisite knowledge should correspond to this task. Prerequisite knowledge for conducting online research would include operating a computer; recognizing an Internet browser application (Internet Explorer or Mozilla); opening the preferred Internet browser (double-click); and brainstorming for search terms related to the topic.

Audience Analysis

For this study, students and teachers had to be factored when designing the technology curriculum. Traditionally, instructional design simply focuses on learner analysis. Learner analysis seeks to understand what the target learners already know, and understand their motivations and preferences. For this context, a significant issue was understanding *What is the student knowledge base of technology literacy?* Addressing this issue served to inform what the target learners knew prior to this educational technology intervention.

Student Knowledge Base of Technology Literacy

To understand the current knowledge base of technology literacy of students enrolled at the school, I reviewed the 2006 and 2007 technology literacy statistics available for the 8th grade student body at Irving Butler Middle School. For 2006, 251 eighth graders were tested and only 40 achieved "mastery/competency" of the technology literacy assessment (GaDOE, 2007)—for a success rate of 16%. The summary of assessment scores in 2007 were less favorable; out of 229 students tested, only 27 achieved "mastery/competency" of technology literacy according to assessment standards (GaDOE, 2008)—for a success rate of 11.7 %. Unfortunately, the report containing the statistics did not define the criteria or score necessary for achieved technology literacy mastery/competency.

I then sought to understand the knowledge base of students attending the CAD after-school sessions. I administered a technology literacy assessment to the CAD students in early February. The assessments were adapted from instruments used to test technology literacy at the site in previous years (and discussed in Chapter 3), so the questions were applicable to what 8th graders would see eventually this year on the NCLB/GaDOE mandated technology literacy assessment, and what 6th and 7th graders should prepare for. Assessments were scored with 24 points being the maximum score. 18 out 24 would be a 75%, and so on. Scores were not given back to the students. I then grouped the questions into three distinct categories: (1) Critical Thinking, Problem

Solving, and Decision Making, (2) Technology Operations and Concepts, and (3) Research and Information Fluency. Critical Thinking, Problem Solving, and Decision Making deals with understanding what technology tools are best suited for corresponding tasks, such as word processing, graphic design of print materials, etc. Technology Operations and Concepts focus on system components and corresponding roles. Questions regarding the evaluation of Internet content seek to assess if students are evaluating online information with regard to authenticity, veracity and bias (NETS, 2007). The results showed that that most kids had good to fair knowledge on half of the technology knowledge and functionality related questions.

Table 5: *Student Technology Literacy Multiple Choice Questions regarding* ***Critical Thinking, Problem Solving, and Decision Making*** *with average or above % correct responses.*

Question	**Correct Responses**
You decide to write a letter to an upcoming guest speaker for debate. Which icon would you click on to open your word processing application?	89%
Which of the File Menu options would you choose to save your document?	100%
You would like to start your presentation software. Which application would you start to create a new presentation?	89%
You would now like to add a picture from the Clip Art gallery within PowerPoint. Which menu option would you select to add a picture to your document?	78%
You need to create a chart from a list of numbers. Which application would you start to create a new chart?	89%
You need to get online to check your e-mail. What application would you use to get online?	78%

Student responses demonstrated they could distinguish between various software applications and know which software was best for what task: Microsoft Word for word processing, Excel for charts and numbers, PowerPoint for presentation materials, and Internet Explorer for going online.

The CAD students scored worse on other questions related to technology knowledge and functionality, as illustrated in Table 6.

Table 6: *Student Technology Literacy Multiple Choice Questions regarding* ***Critical Thinking, Problem Solving, and Decision Making*** *with below average % correct responses.*

Question	**Correct Responses**
You know the name of a file but don't know the location of the file. Which option would you choose?	67%
Your Word document now contains text with the words "Dear Sir or Madam" selected. Which menu option would you click on to make the text darker (bold)?	56%
You would like to make sure the words in your document are spelled correctly. Which menu option will check your document's spelling?	22%
Which of the following is not a way to copy information on a computer?	44%
What is the area of a computer called that is used to copy information from one application to another?	22%
You need to find current information about this year's debate topic online. Which of the following is a search engine?	56%

These functionality questions focused on specific tasks for operating a computer and managing file information. Students were also weak on identifying specific tasks within applications—such as spell-check and formatting functions. CAD students also scored poorly on questions dealing specifically with technology equipment, in terms of hardware (computers, peripherals such as keyboards and monitors, and the like) and software, as reported in Table 7.

Table 7: *Student Technology Literacy Multiple Choice Questions regarding* ***Technology Operations and Concepts*** *with below average % correct responses*

Question	**Correct Responses**
Which of the following is considered an output device?	45%
Hard disk drive capacity is normally measured in:	56%
Which of the following devices is necessary to communicate with other computers using the telephone network?	67%
When information goes across a network such as the Internet, it is measured in:	44%
What is the best way of preventing your computer from being infected by a computer virus?	33%
Which of the following is a current PC operating system?	33%
What does a file's extension tell you?	44%

The student responses revealed poor knowledge or understanding of hardware functions in the context of technology systems and data transport between technology equipment.

CAD students also did not score well on questions related to evaluating web content/information. A print copy of the web information provided to the students is available in Appendix G. Many debate students (6-8th grade) could not identify the source of a web page, or when the web content was posted online, despite graphics and datestamps similar to what is displayed in newspapers and magazine articles. Results are featured in Table 8 below.

Table 8: *Student Technology Literacy Short Answer Questions Regarding* ***Research and Information Fluency***

Question	**Correct Answer**	**Correct Student Responses**
Who do you think is the person or organization responsible for creating this webpage?	Science News for Kids	56%
When do you think this webpage was created?	Oct. 8, 2008	45%

The CAD student assessment results regarding Internet content supported academic literature that states most children have a difficult time understanding, evaluating and interpreting web information (Ba et al, 2002, Eshet-Alkalai & Amichal-Hamburger, 2004; Coiro & Dobler, 2006). Additionally, another data source, the CAD Student Questionnaire, asked students to self-rate their ability to do Internet based research. The responses, however, showed confidence on students' part: 54% rated themselves as 5 (excellent), 30% self rated as 4 (above average), and the remaining16% as 3 (average).

The student assessment demonstrated that most debate students had general knowledge of basic software tools used for their school work, but little foundational knowledge as to how and why computers and technology applications work. Other forms of data served to provide a more complete understanding of the existing technology literacy knowledge base of CAD students. Field notes, interviews (students and faculty), and the CAD Student Questionnaire revealed some general characteristics regarding technology about the debate students. They did not recognize the term "technology literacy", but most were able to give a reasonable definition of it when asked. Table 9 presents a sampling of student responses.

Table 9: *Selected Student Interview Responses about Technology Literacy*

Have you heard the term "technology literacy" before? Where did you hear it? What does that mean to you?
Just now. … Technology literacy - a test. [For?] Technology, how well do you know about it.
No. [What do you think it means?] It's some studies about technology.
Huh.. huh.. I don't-- I don't have no clue. Just deal with the internet?
No. [What do you think it means?] I guess like a test on how much you know on technology.

The responses seemed to indicate students had understanding of each term, and used this knowledge to form a definition for the combined concept. They also seemed to equate "literacy" with a "test" of some type. Another finding was that students have been exposed to technology at an early age (many during pre-school/Head Start). Table 10 has examples of reported early experiences with technology.

Table 10: *Selected Student Interview Responses about Earliest Memory of Technology*

How did you learn to use a computer? Who helped you learn? How did they help you?
The first time? I really don't remember. I believe it was a LeapFrog computer. [Who helped you use it?] My mom did. [How?] By the alphabet, the sounds. She had a Web site that she worked at. She has a degree in that.
When? Like, 8 years ago. When I first got into school in the United States. 3rd Grade. When I first got here, to the United States, I would go to this school. Like from my elementary school, I'd catch to another bus to downtown, to a ESOL school, for like students who didn't speak English. So they would help me there.
Hmm.. hmm.. Six. [Where?] At school. Kindergarten. [Who helped you?] My teacher. [How?] She told me to get on the computer and she put in a learning disc and we had to listen to ____________ and stuff.
Yeah. Yeah, about four. [Do you remember who helped you?] Yep, my mom. [How?] By showing me how to use the keyboard and the mouse and stuff like that.

Not using technology in school is a concept these kids have never known. Other characteristics of debate students included preferring to use technology mostly for personal activities (e-mail, texting, downloading songs & video, watching YouTube). Students were indifferent about using technology for school (meaning if they prefer using technology vs. traditional materials), and there was mention of limited use under teachers' supervision during the school day.

Observations of student technology use in the CAD classroom

My observations of technology use in the CAD classroom revealed students interacting with computers on a personal versus academic level. My first day in CAD, I noted 3 desktop computers at a table in the back of the classroom under a wall banner saying "Early Finishers Area" (FN 004, Nov 2008). This led me to believe computer time was used as a reward for select students instead of a regular teaching tool for all. I observed students using the computers before after-school debate started on numerous occasions. Kids would be listening to Internet radio (www.pearpacket.com and Pandora were favorites), downloading songs (as MP3s), or watching music videos. One instance from my field notes is described below:

> 4 boys are at the computer station before CAD begins. One is boasting how he got past the firewall (his words!) and got to YouTube. They are watching a silly (but PG-13) video, so I don't say anything. When I ask how he got to YouTube, he proudly says he got the password by looking over a teacher's shoulder at the keyboard as he (teacher) typed it in. (FN 018, Jan 2009)

So I then realized these kids are savvy enough to get past roadblocks (in this case, a firewall) to pursue fun activities. But do they understand *what* a firewall is, and *how* it works within a technology system?

Another favorite past-time was playing Internet games. Occasionally I would see students playing educational games (which were really drill and practice exercises) that were loaded onto the computers. During preparation for Spring standardized testing (CRCT), the computers were used by non-debate students who were attending language arts tutoring under the home teacher for the classroom we regularly used.

Student use of technology during the actual CAD sessions and related to debate activities were rare instances. The students were more likely to initiate use, while the faculty seemed almost purposely oblivious to the equipment being there. One example of technology use within CAD was documented in my field notes.

> The brownfield discussion mentions the Great Lakes. Female student gets on the computer to do a search; 1st search result is "Michigan Beer Buzz"—is this info for the Great Lakes, she asks? (FN 010, Dec 2008)

While it was encouraging to witness the girl choosing technology to expand her knowledge, the episode demonstrated an unsuccessful search. I was not able to see her original search terms, and a faculty member quickly pulled her off the computer after she shared the beer festival search result. Another day I was optimistic when a new faculty volunteer arrived early and asked me if "there were computers to use". I directed him to the rear table in the classroom, hoping for him to setup a technology learning activity for the kids. He instead promptly started Yahoo Maps to get driving directions from the school to a location he was going after the session (FN 012, December 2008).

When evaluating the classroom computers for the technology activities, I could understand why CAD faculty may be reluctant to use them for the debate sessions. The machines were slow, and usually only two out of three worked at any given time. A closer look revealed there were 3 IBM computers in the back of the CAD classroom. Two machines were running Windows 2000; the third machine was running Windows 97. The Windows 97 machine still had a 3.5 disk drive (it remained per a previous teacher request); the other machines featured CD drives.

Faculty Knowledge Base of Technology Literacy

I felt understanding the faculty was just as important as the students, with regard to technology literacy. If CAD faculty had apprehension, confusion, or bias about technology (or technology literacy), this would impact the implementation at some point. I administered the Faculty Technology Inventory to gather information about their technology knowledge. With regard to technology, faculty recognized the term "technology literacy", but were unaware of any corresponding formal academic testing or national education requirements. The technology survey confirmed that the faculty had advanced tech competency, and applied it toward work, academic and personal use. All 16 faculty surveyed reported using the Internet daily. 37% of the faculty identified themselves as a moderate technology user; the remaining 63% identified as significant technology users. 100% of the faculty reported using technology for the following activities: e-mail, research, shopping, banking, chat, travel, and news. 81% of the faculty also reported using technology for educational activities—given these respondents were all college students (graduate and undergraduate), this was not surprising. While some had experience using technology as a student within undergraduate, graduate or professional education, most faculty participants had not used technology within their CAD teaching role—or if they had, it was more for personal support than student exposure. For instance, I observed faculty using personal PDAs for timing the mock debate rounds (FN 022, Feb 2009). A senior faculty member also shared:

> *I often go online to student and teacher websites that deal with interactive lesson plans for the kids that, but I'm pretty limited to the ones that I can print out and take to the students as opposed to having them {kids} look things up on the computer so,*

I'm getting a lot of the technology interface, but they are not (EF Faculty Interview 1, 2008).

Student Motivation and Preferences

Learner analysis also seeks to understand the target learners' motivations and preferences. Field notes, interviews (students and faculty), and the CAD Student Questionnaire revealed some general characteristics about debate students' likes and dislikes. The tables below feature sample responses from the CAD Student Questionnaire regarding debate.

Table 11: *Selected CAD Student Questionnaire Responses about Debate*

What do you think debate is?
debate is to time to express your self ver bally (sic)
Debate is a place where you agruy (sic) but in a good way
An club that helps you out things (sic) that you feel need to be spoken
like being in court; court, jury, judge, lawyers
I think that debate is when you tell other people your opions (sic)

Table 12: *Selected CAD Student Questionnaire Responses about Preferred Debate Topics*

What are some topics you would like to debate about? Remember, it can be about anything.
Kids could start working at 13; Better school lunches
T.I. is a good rapper or not
Obamo (sic) in the white house and camera people allover (sic) celebrities; and fathers not doing what is need for a daughter
I would like to debate about racism
Guns, The homeless

Students loved participating in after-school debate, whether they compete in weekend tournaments or not. Debate gives them a chance to say what they want/feel, and to be heard.

Students like the activities they do after-school because it doesn't seem like "schoolwork"—there is more emphasis on speaking and verbal communication in comparison with traditional scholastic writing tasks and quizzes. Some students have had negative experiences associated with "school" as reflected in responses in Tables 13 and 14.

Table 13: *Selected CAD Student Questionnaire Responses about School Dislikes*

What, if anything, do you dislike about school?
I don't like when teacher don't let me put my point of view in the agurment (sic) in it.
The bad behavior of some students.
math
s-liars, attiude (sic), and the work
Boring assignments

Table 14: *Selected CAD Student Questionnaire Responses about Ideal School Rules*

If you were a teacher what rules, if any, would you have for your class?
respect me
Be respectful; Due work on time; Have a great attiudes (sic); Most importantly, HAVE Fun!!!
no talking; no cursing; no yelling; and no Lackadiscal (sic) students in class
try your best
you could talk but do your work at the same time.

Debate students seem to be coping with respect issues not only among their peers, but with school teachers and staff. The climate at the school outside of CAD sessions (as described in Chapter 4) was lacking in respectful cues and behavior.

CAD faculty interviews and the faculty technology survey also shed light upon some issues regarding debate students and challenges informing their instructional strategies. For instance, most students enjoy debate either at a casual engagement or competing level, but the majority have reading and writing difficulties. The language arts teacher sponsoring debate at Irving Butler mentioned:

> *... some of them have um, retention issues. So they can go over the material, and go over and go over it, but because certain deficiencies are there, they aren't able to hold that information, you know, like some of their peers. (AA Faculty Interview, 2008).*

A senior CAD faculty member--without a formal background in education--also noted this:

> *... I do see that some kids have made it to middle school with a lot of learning deficiencies, and educational deficiencies, um, and, to the point where they're 8th grade and maybe on a 1st grade reading level or so, and you know, that was eye-opening to me, and those are the students I primarily work with--not really saying that encompasses all the students we work with, because we also have like, brilliant, students, but I end up working with ones who, like we work on reading problems, issues, and you know, maybe educational development issues. (EF Faculty Interview 1, 2008).*

Faculty regularly employed (and enjoyed) collaborative learning during afterschool session--this strategy was partially dictated by staffing numbers and positive response/outcomes with the kids. Faculty did not like using graded assessment techniques, and often viewed this as another way to marginalize the students and their effort—since most students are underperforming grade-wise during the regular school day.

Qualitative Analysis of Debate Education Context

The after-school session field notes taken during November – December 2008 were openly coded to discover any relevant themes. The open coding process was discussed previously in Chapter 3. There were initially 15 labels that collapsed into 7 categories.

Some of the categories such as *descriptive* and *administration/organization* were removed from consideration since they did not directly inform the technology lesson design. The remaining categories were then used to code student artifacts from CAD sessions (from November to December 2008), and Interviews 1 and 2 (both student and faculty). Three primary themes emerged that were used toward conceptualizing the technology activities: community, context, and communication. Table 15 features examples of coded labels within each theme/category.

Table 15: *Examples of Emergent Categories and Code Labels*

Category	Key Attributes	Code Label Examples	Corresponding Data Examples
community	family, neighborhood, school, debate squad	Faculty Community	He [QT] talks about the sense of community present and wants to keep that spirit going, because this year will be full of struggles (FN 001, 09/08)
		Community outside CAD	Um, because they live in so much chaos, a lot of them, and I don't want to overgeneralize the kids we have, because the kids are awesome, but they do, are challenged a lot of ways in their environments, be it in school, be it home, or in their communities (Faculty Interview 1, 11/08)
communication	having a voice that is heard/ using my voice/ self-expression	Introductions	JL immediately sits across from me (next to G) and introduces himself—he remembers me from past meetings and "the video" (FN 002, 10/08)
		Debate as Communication	I heard from my cousin that debate is a chance to tell or show people how you feel about a situation or anything. (Student Thinkwrite, 11/08)
context	social references; local and global geographic references	School Context	Most of them have went through so much at home and in their schools, and a lot of times when they come to us, they have had so many adults let them down, and ah, have contributed to their, either apathy or their kind of disengagement or they just kind of just resentment toward life (Faculty Interview 1, 11/08)
		Debate Context	Debate to me & being on the debate team is going to be fun because I am going to learn alot about life and how to stop nonsense & foolishness. (Student Thinkwrite, 11/08)

Summary

For this research, I attended and volunteered technical assistance at the CAD sessions during the 2008-2009 school year to experience, analyze and document the available technology, student competency and preferences, administration and faculty expertise and preferences, and the socio-cultural goals of the CAD program. All of this information from the *Analysis* phase would be used to inform design of the lesson content, structure and sequence of the technology activities. The next step in the ADDIE process, *Design*, was ready to begin.

CHAPTER SIX

DESIGN & DEVELOPMENT: WORK IN PROGRESS

This chapter will discuss the design and development of technology activities for the Computer Assisted Debate (CAD) after-school program within an urban public middle school. The technology activities are part of the larger qualitative research study. The goal of this study was to design culturally informed instructional technology activities for the Computer Assisted Debate (CAD) program and then observe the consequences of these activities within a CAD community. The activity design and development took place during January - February 2009. All of this information from the *Analysis* phase was used to inform the lesson content, structure and sequence of the technology activities. This chapter will document the *Design* and *Development* steps, respectively, in the instructional design process.

Design

For the design phase, corresponding instructional design activities include: determining instructional objectives, selecting an instructional strategy (or several), selecting the appropriate media/equipment, sequencing instruction, and developing assessment measures (Seels & Glasgow, 1998).

Determining Instructional Objectives

First, I drew from the results of the student technology assessment (discussed earlier) to inform the desired objectives. These results demonstrated students' knowledge of functionality with computers, and weaknesses in student'sunderstanding of Internet materials. Additionally, I revisited NETS for students (also utilized during the literature review—see Appendix A and B) and the GaDOE standards for developing objectives that were in line with the standards and for the technology activities. Another facet of the instructional objectives was to support the teaching/learning objectives already in place within the CAD format. It was already a priority among CAD faculty to reinforce learning the various terms used repeatedly within the debate evidence packet. I had already made reference to this in my field notes:

> *Again, the "circle unfamiliar words" task is assigned during group work—perhaps this may be more engaging if Internet searching was involved? (FN 010 Dec 2008).*

There were other activities that could have easily used the addition of technology, but I only selected those that would support the objectives described above.

Selecting Instructional Strategy

With regard to instructional strategy, a combination of the pilot study findings and the qualitative data collected during the Analysis phase supported the notion that collaborative activities were preferred by CAD students and faculty. The dissertation literature review also suggested that social constructivist teaching strategies using technology can enhance student performance, motivation, and agency for urban learners in afterschool settings (Goldsmith & Sherman, 2002; Vasquez, 2003; Young, 2008). I worked to incorporate common factors from successful approaches per Shields & Behrman (2000):

1. Constructivist influences
2. Collaborative learning
3. Consistent feedback from (CAD) faculty
4. Authentic, real world application

The group culture themes (community, communication, and context) that emerged during the analysis phase could also be applied as social constructivist characteristics. I also wanted to make sure the technology activities were personally and culturally relevant to the students and faculty within the CAD community, and the curriculum was tailored to the community, and adaptable to dynamic changes within (Duffy & Cunningham, 1996). Figure 5 provides an illustration of the abovementioned factors taken into account when designing the instructional strategy for technology activities within this urban debate context.

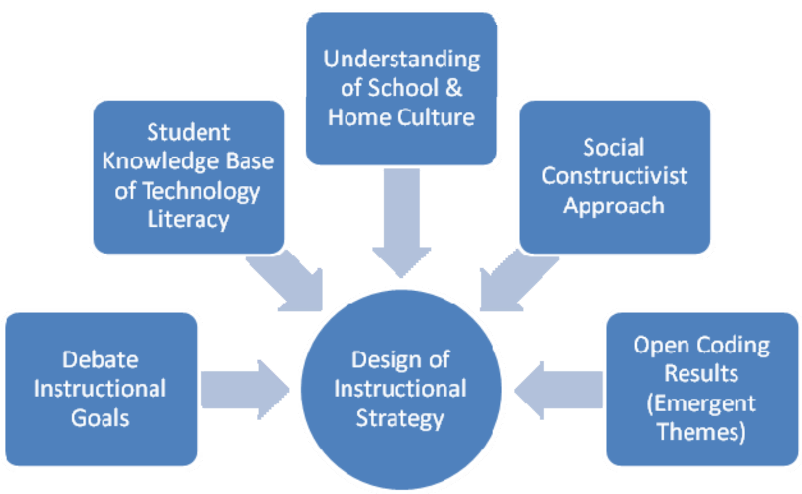

Figure 5: Factors Informing Design of Instructional Strategy

Determining Materials/Resources

In order to determine necessary resources for the technology curriculum, I made a decision to work with what was available free of charge. This was because of pre-existing resource and funding challenges. Each class computer was equipped with Microsoft Office, so activities would use Word and PowerPoint. Google Earth, an online geographic information system (GIS) tool could be acquired through a free download. Next, I considered the late model classroom technology environment and external (faculty) resources. All CAD faculty members had personal laptops. This was either due to mandatory ownership for university school-work, or as part of a professional/job function. Considering that students had limited access at relatives' homes (or the county library), or no access to Internet enabled computers at home—using the contemporary faculty computers in addition to the classroom machines seemed the best option. The CAD faculty accepted this request with hesitation. I also decided to make the lesson solely for CAD session time—no homework or outside work would be required. This would remove student access to technology outside of school (or lack thereof) as a factor in completing CAD technology activities.

Sequencing Instruction

Sequencing the instruction proved to be a complex task, as I had to supplement the regular CAD teaching schedule, and take into account preparation for weekend tournaments and extracurricular events (Mock Trial event and end of year banquet). Tech Day activities were scheduled to begin in mid March, during preparations for the final two tournaments of the middle school debate season. Staff attendance was also a factor because since faculty would provide most of the technology equipment (laptops). To keep things simple, an overall structure to the Tech Day activities was designed. The students would work in groups of 3-4, with 1 CAD faculty supervising each group. Each group would use a laptop provided by the lead faculty. If the faculty did not have access to a laptop, the three desktop computers at the back of the classroom could be used. Once all this information was considered and compiled along with corresponding debate instruction topics for the year, four draft lesson plans for the activities were generated in the following sequence:

1. Online Debate Vocab Search: Based on the Debate Topic Terms handout, students will search online for real-world examples that best exemplify the vocabulary term. The handout/list will be split among the groups. At the end of the activity, all groups will present their best real-world examples and justify to the rest of students. There may some debate as to whether the examples are worthy or not, with regard to this year's topic

2. Google Earth Brownfield Tour: Students will use Google Earth to locate different "brownfields" around the world (list of brownfields to be supplied at beginning). The handout/list will be split among the groups. Each group will have to locate a picture of the area, find out origin/history of the area, current population and use, and any proposed development plans. The groups will share their findings with everyone at the end for discussion and questions.

3. Brownfield Development PowerPoint: Based on info collected in previous activities (Thinkwrites, current event discussions, etc), each group will compose a PowerPoint presentation intended for Mayor Shirley Franklin about developing the closed GM plants in the ATL area. The presentation will include text, graphics, sources, etc. The computer time will be utilized for compiling and arranging content, as the research and writing has been done prior. Each group will present using their PowerPoint on an LCD projector.

4. Online Career Day: Students will do an online search to find one real person associated with each career; identify what he/she does on a daily basis; what education/experience is necessary; average salary; and what inspires person to do what they do. *NOTE: This may be more of an individual activity, with each student assigned 1 or 2 careers*

Each tech day activity was estimated to take 60- 90 minutes, based on computer availability, CAD staffing and student attendance for that day. The activity summaries presented here are the draft versions; the final versions of the activities are presented in Chapter 7.

Determining Assessment

The next step was designing assessment materials. I initially struggled with how to design assessment for the CAD students, given their attitudes about more tests to do, and the CAD faculty being protective of their interests. I resigned to solely seek observable changes in student behavior (Field notes, student artifacts, participant interviews, student assessment). A form of student assessment that was amenable to everyone was eventually created by a CAD faculty member, and will be discussed later in Chapter 7.

Development

The Development phase of ADDIE calls for creating draft materials necessary to conduct the curriculum (Seels & Glasgow, 1998). For this study, this meant developing lesson plans, supporting faculty and student materials, and a tentative schedule. It also called for incorporating tutoring for students around the prerequisite knowledge required, and developing faculty training for facilitating the activities independent of my involvement at the planned Tech Day session. The student tutorial took place in mid Feb during after-school, and was very informal. I reviewed the results of the technology assessment, and spent additional time on the areas (technology systems, comprehension of internet materials, etc.) that they were weak on.

The faculty training was more formal and took place outside of regular CAD sessions on a Saturday in late February. The training was titled “Teaching with Technology” and covered the following topics: Technology literacy (definition and assessment), Internet searching techniques, Overview of using Google Earth, and Visual Aid Design guidelines (for PowerPoint activity). Faculty were then divided into teams to "test drive" one student activity. They were provided with the lesson plans, plus any printed materials students would receive. The training itself was very well-received by the faculty. Table 16 lists faculty responses during Interview 2 post training:

Table 16: *Faculty Interview Responses about Helpfulness of Training*

Did you feel the Facilitator training was useful/helpful to you? Why or why not?
This training where we learned about what we're going to be doing was a lot of help to figure out how we're actually going to be using computers--mainly because so far we have yet to really do that. We've done a lot more focus on the debate aspect, and the training really helped show us what we're going to be doing with the computers.
It definitely was helpful. It gave me ideas kind of like a jumping ground of where we can take the training and technology in using the Google Maps and Power Point and internet research, what we can use to help the kids, and it also gave me a goal to set for myself when teaching which is helpful, because the internet and technology is just so broad that it helped set a starting point and a goal.
It was useful, well, on several levels. One it was just interesting to just research the words that actually deal with their debate time, the resolution for this year. Secondly, in terms of- and I looked back over the lesson plan for today and I was remembering that there is some thing in the material that you gave us that identifies where we should go in terms of the value of the research that's found. I was reminding myself to go back and revisit that--...to be sure that I would know how to lead them in that discussion. And also, it was kind of interesting to wonder how they would interpret whatever we find there as we go through the activity today, to see what kind of value because kids are kind of surface learners in many instances. Unless you push them to go more deeply into it- now my hope is-- I know that some debaters would really question is this valid research, is it bias research, whatever, but then some would just kind of take it on surface value and run with it and it's like this article said-- well, it's not understanding that there might be reasons that this research might not be as valid as some other as evidence to use on the topic. So it's going to be interesting to see how this particular group will go.
Yes. It was helpful for a couple of reasons. One, gave instructors and staff an opportunity to have some hands on time with the actual curriculum that was planned to be used. Two, it gave people an opportunity to vet the curriculum in ways so they could figure out what some of the challenges-- potential challenges would be. And to have a conversation and use some preplanning strategy. And then, also, I think, it gave them an opportunity to see that they have been doing a lot of work on the front end. So it made their job a lot easier. And all those things, you know, bode well for that particular session.

The training served to help the faculty understand the importance of developing technology skills and provided a walk through of the proposed activities. Faculty further elaborated on how participating in the activities themselves was possibly the best aspect of the training, as reported in Table 17.

Table 17: *Faculty Interview Responses about Best Aspect of Training*

What was the best aspect of the training?
Showing us what we're going to be doing ... I knew, how to do much of the stuff, it wasn't teaching me, but it was showing me what it was we're going to be teaching them.
Just to see how you are going to use the training and really CAD to help to create activities that would be of value to them because, again, it goes back just their being surface learners. For them to go more deeply into how they can use a computer not only to find information, but then again that URL that you gave us for where we would go, where we could go to help them to decide how important this is or how valid this is. So really for me, the first part of the activity in doing the research was kind of an easy call and it probably will be for them, but then for them to apply it and then for them to evaluate; so, those two sentences kinds of things. You know, usually lesson plans, that's the most important level for them to get to and so that, seeing how you could use that to help them to know that there are deeper levels of critical thinking that they should kind of pull forward in their thinking was a good thing to see.
Personally it was the materials that you handed out. I guess the most interesting part were the standards that the schools are using to test technology competence, and I am still interested in what Irving Butler students are actually doing, but it gave me a reference, a framework for what kids are supposed to be able to do at middle school age.

The responses also reveal the importance of the lesson plans and being able to think about and anticipate problems during the actual sessions. Faculty also reported little to no complaints about the training, except wanting to have more time devoted to it, exemplified by comments in Table 18.

Table 18: *Faculty Interview Responses about Worst Aspect of Training*

What was the worst aspect of the training?
Um {visibly uncomfortable}… Well, I'd really have to wait and see--I haven't seen it implemented yet, so ... I'd have to wait and see first.
What could make it better? Given the time that we have with them, my thinking is that we can get all that you wanted and especially through the-- I know we could get the processes done, but my hope is that we will have enough time for the sharing and the discussion and all of that. I knew we'd have enough time to get through the first part, but the second layer is what I was concerned about. And again, given the population that we have and their untaskness--...you know, their focus. If we can manage to keep them focused enough and half of them will be easily and there's that other little third to a half that could affect how much we could get done. So, it's going to be interesting
There was no part that was not particularly helpful. I think that-- yeah, there was no part that was not helpful. I mean, I wasn't helpful in getting there late. Sure. I mean, I thought it was a good exercise overall, especially the first part. Maybe with more time, maybe without some of us being late we could have gone over the work that we did in the group work, just to see what the different groups came up with, but I thought that the exercise was good overall. I think it was our-- many of us being late and the time constraints that we had was…
Yeah, I mean, I think my things in the way it could be improved upon were issues about time. I think if we had more time, you could flush out even more things. And I think if you had more time for the group as a whole to brainstorm, and come up with some creative technology curriculum, in addition to what had been. So it wasn't an issue of it was bad. It was more of an issue of how could it be better.

After the faculty training session, draft versions of the lesson plans were shared with the entire Atlanta Urban Debate League (AUDL) staff by posting them on the Google Group listserv for feedback. An example of correspondence is featured in Appendix H. As a result of formative evaluation and feedback, the lesson plans were refined and adjusted. The final four complete lesson plans, along with supporting materials, are featured in Appendix I. Each lesson plan details the instructional goals and NETS standards to be addressed. It should be noted that each lesson factors in the Georgia Department of Education definition of demonstrable technology literacy, with the exception of *(c) production of a portfolio of completed activities* (GaDOE, 2007). Time constraints would not permit creating an additional portfolio. If the CAD program started in September (as usual), then the additional 8 weeks could be used toward students producing portfolio of completed activities.

Summary

This chapter presented an overview of the instructional design tasks for design and development of the CAD technology activities. I designed and documented lesson plans for the technology supported activities using the results from my ethnographic research. During the development period, I provided student and facilitator training plus support for the implementation of the technology activities, solicited feedback from students, faculty, and administrators, and continued to document the CAD session events. The following chapter will serve to describe the research findings during the implementation of technology activities within after-school debate.

CHAPTER SEVEN

IMPLEMENTATION: STUDY FINDINGS

In order to submit findings relevant to the impact of this culturally informed technology intervention, I will first describe the student and faculty experiences after the technology activities were implemented during the CAD after-school sessions. These experiences will then be explained within themes that emerged from focused coding of the data based on guiding research questions 1 and 2: *What occurs in a CAD program community when an ethnographic approach to instructional design is implemented? What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?* I will then introduce and address additional findings that emerged from the data collected.

Activity Implementation & Faculty Ownership

The main task of the implementation phase is to facilitate the instructional curriculum in context (Seels & Glasgow, 1998). The four activities were conducted during CAD after-school sessions on March 12, March 19, April 2, and April 30, 2009. I was present for each Tech Day except the Google Earth session (Activity 2). I collected video footage during the after-school sessions, took field notes and collected REF sheets from each participating CAD faculty member.

Faculty took ownership of tech activity lesson plans in three distinct ways. First, one faculty member took it upon herself to create student worksheets as a form of assessment for each Tech Day activity. When the first activity summary was distributed to CAD faculty for review on the Google Group listserv, this senior CAD faculty member (and retired middle school teacher) created a corresponding student assessment worksheet. The worksheet focused on short answer questions regarding the task and lesson content for the activity. From then on for every Tech Day activity, she brought a corresponding worksheet to the CAD session. This is a good example of formative evaluation (Seels & Glasgow, 1998), where the learning materials are refined while in practice. An example worksheet is featured in Appendix J.

Second, my absence from the Google Earth activity (as mentioned earlier) was not planned in advance, but the assigned CAD faculty that day had attended the Teaching with Technology training. The faculty did not voice any apprehension upon finding out I would not be able to make it. After talking briefly with one of the CAD faculty before the session, we decided that the training, along with detailed faculty materials (lesson plan) would give her enough support. She also indicated that based on the success of Activity 1, they felt OK doing it without me (Personal Journal, 4/11/09).

The third example of faculty taking ownership was that, due to scheduling disruptions, it seemed that Activity 3 would not be conducted. The frequency of session cancellation, or lesson plans changed at the last minute was not unique to my efforts toward scheduling technology activities—it was common and faculty understood that they had to be flexible to accommodate changes. The initial focus of the activity was for teams to develop a PowerPoint presentation about the alternative energy debate tournament topic, but the only opportunity for rescheduling Activity #3 was after the regular debate tournament season had ended, and debate instruction would focus on another debate topic to prepare for the Mock Trial event. More importantly, the revised date for Activity 3 was the week before Spring Break. I thought the students would be less enthusiastic about continuing with a topic that they no longer had to debate about. Two senior faculty members implored me to revise the activity so it could be done the last session before Spring Break because the past activities were so successful and engaging, they wanted another one to break the "distracted" spirit that takes the kids right before an extended vacation. In addition, the students were participating in a special mock trial event in three weeks that called for them to take on the roles of lawyers and witnesses for the defense and prosecution in a fictional case about school bullying. I then amended Activity 3 to focus on the bullying topic in an effort to help prepare CAD students for the mock trial event. Activity #3 took place, as requested, on the last after-school session before Spring Break.

CAD Technology Activity Days

This section is a review of the culturally informed technology activities developed for CAD. Table 19 provides a summary of the activities and research participants present.

Table 19: *CAD Technology Activity Summary*

Activity	Date	Students Present	Faculty Present
Online Debate Vocab Search	March 12	9	4
Google Earth Brownfield Tour	March 19	14	2
Mock Trial/Bullying Powerpoint	April 2	13	4
Online Career Day	April 30	6	3

Activity 1 is the Online Debate Vocab Search. Student groups searched online for definitions and real-world examples that best exemplify debate vocabulary terms, and presented their results to the entire class at the end. Activity 2 is the Google Earth Brownfield Tour, where student groups locate different "brownfields" around the world, complete an activity worksheet, and present their findings at the end for discussion. Activity 3 called for each student group to compose a PowerPoint presentation (including text, graphics, sources, etc.) around topics within the Mock Trial debate subject of bullying. Activity 4 is the Online Career Day, where students individually searched online to find information about careers of their choosing. All four lesson plans appear in Appendix I.

<u>Student Participants' Technology Literacy Experiences</u>

Once the activities were implemented, data in the form of researcher field notes, faculty reflection, evaluation and feedback (REF) sheets, and student work and interview responses were coded specifically for evidence of technology literacy. The technology activities allowed the students to openly demonstrate their technology literacy skills in the domain of Internet searching more than any other. The culturally informed activities all covered a range of topics: debate vocabulary terms, geographic map reading, information design, and vocational interests. However the guidance and structure of each activity called for students to (1) critically think about words or subjects that were related to or described the topic at hand, (2) type these words into an Internet search engine, and (3) read, navigate, and evaluate the search results. While students completed these activities, the CAD faculty and I observed stark differences in their Internet search skills. Examples of good technology literacy and poor technology literacy will be presented and discussed in the following sections. Pseudonyms are used for students and the corresponding artifacts featured.

Good Technology Literacy

For this discussion, evidence of good technology literacy competency was defined as students completing the activities correctly with little problems, aside from occasional equipment hang-ups. Student artifacts that demonstrated good technology literacy featured an understanding of the activity task at hand and accurate responses of questions on the corresponding worksheet. Activity 1 called for using the Internet to locate definitions for vocabulary words related to the debate tournament resolution. The vocabulary words were preselected and listed within the debate evidence packet given to every student. An example of demonstrated technology literacy is featured in Table 20 below:

Table 20: *Selected Activity 1 Worksheet Responses Demonstrating Technology Literacy*

Student	**Vocab Term**	**Related Search terms**	**Definition**	**Is this content credible?**
David	alternitive (sic) energy	solar power	Dictionary.com: energy derived from sources that do not use up natural resources or harm the environment	x
Professor	brownfield	"examples of brownfields"	Atlanta/Atlantic Station; Homestead, PA; Portland, OR; Pittsburgh, PA	Yes. It has a whole lot of information about Squirrel Hill's brownfields.

David (8^{th} grade) and Professor (6^{th} grade male) both displayed good technology literacy for this activity. Both listed relevant search terms connected to their assigned vocabulary terms. Instead of writing out a definition for Brownfields, Professor simply listed examples of real brownfield development sites in the U.S. Activity 2 called for students to locate a brownfield development using Google Earth, a GIS (Geographic Information System) application. Students were given a list of known U.S. brownfields as part of their curriculum materials. An example of demonstrated technology literacy for Activity 2 is provided in Table 21:

Table 21: *Selected Activity 2 Worksheet Responses Demonstrating Technology Literacy*

Student	**Key Search Words You Used**	**For what was this area used in past history**	**Has the area been developed? Are there plans for future use?**
Princess	Atlantic Station, Atlanta, GA	It was used as a Train station	yes; It has resturant (sic) and they have stores and fun things to do down there.
Sasuke	Abandoned, polluted, Atlantic Station	It was a train yards for train (sic) that travel all over the world.	yes; No, they might wanted (sic) to make more updated condos.

Princess (7th grade female) and Sasuke (6th grade male) both selected Atlantic Station, a brownfield local to the Atlanta metro area. Their worksheet responses show generation of successful search terms, and reading comprehension of the information found using Google Earth. Activity 3 had students developing a PowerPoint based on evidence material provided for the Spring Mock Trial debate event. The mock trial centered upon a fictional student bullying case. Students were given the mock trial evidence packet and a list of bullying information websites. Each group of students was assigned to develop a presentation around a particular theme, such as bullying roles or victim coping strategies. An example of demonstrated technology literacy for Activity 3 is provided in Figure 6.

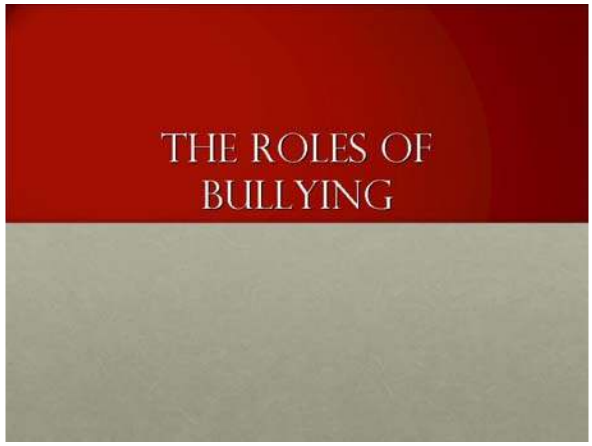

Figure 6: Selected Activity 3 PowerPoint Artifact Demonstrating Technology Literacy

David, Pooh (7th grade female), and Joi (7th grade female) worked together to create this powerpoint. They supplied a definition for "victim", and cited the online source on the slide—even though this was not specifically requested as part of the lesson requirement. As described in Chapter 4, the Rihanna domestic abuse case was a hot topic among the student debaters, and this student group searched for her pictures as an example of a victim. The "People vs. Dixon" reference is to the Mock Trial bullying case that debaters were preparing for. All of the student artifacts featured demonstrated good technology literacy skills with regard to the task at hand.

Faculty was also quick to comment on students who demonstrated technology literacy with the debate technology activities on the REF sheets:

> *Princess and Professor were both very competent on the computer in comparison with their peers. Both were able to navigate through Google Earth and a Mac.*

The skill of Professor was a surprise to many faculty, as he was very quiet and reserved when it came to traditional debate activities, such as speedreading and public speaking. This interview excerpt reflects a faculty member seeing this student in a new light:

> *Professor is a very quiet individual. When he got on, he was just all over the computer and was typing almost with 10-finger typing. I was really shocked, and he's a sixth grader, I think, so that was another thing that I just assumed that, as they were older, they may be more proficient in skills, which that's not necessarily the case, especially with technology.*

On Activity 3 (Bullying PowerPoint), other students were observed demonstrating PowerPoint skills, and incorporating graphics and formatting:

> *For our group, the technical aspect was easy because students had done PowerPoint presentations …Pooh is very tech savvy. Jennifer is also very sharp*

Poor Technology Literacy

The debate technology activities also revealed students with a poor grasp of technology literacy knowledge and skills. Student artifacts did not fully capture this phenomenon, as students having difficulty more often than not chose to complete the activity worksheet. Poor demonstration of Internet research knowledge and skills, however, were observed by myself and CAD faculty. This faculty member commented specifically during Activity 1:

> *Both Kelly & David should/would benefit from more research assignments on the computer.*

While David did submit artifacts demonstrating technology literacy that were featured earlier, this faculty member shared with me that she was concerned about his evaluation with regard to authenticity and validity of Internet sources. She mentioned that he was "somewhat careless and random" with his choices of search results to read and review (FN 033, March 2009). This same faculty member shared her concerns about Kelly (7th grade female) during her 3rd interview:

> *I came in with an assumption for some of them that they were more skilled than they were and some, that they were less skilled than they were. And so it really did shine a light on, like, not coming to the table with assumptions about somebody or-- and some of them proved to be far more tech savvy than I really thought that they ever would be. Yeah, like Kelly for example, she was big talk about how she knew computers like the back of her hand. And then when she actually got on there, it wasn't so.*

Students who struggled with the activities did so because of the following: they generated poor/non related search terms; they misspelled the terms; or they had difficulty typing (FN 033, Mar 2009). The typing issue contributed more towards student frustration in taking longer to finish than everyone else, but also speaks to technology literacy skills. Because the laptop computers were being shared, some students had less productive typing/search time than others. Poor generation of search terms and poor spelling, however, resulted in genuine and visible frustration by students. One faculty member reflected back upon Activity 2 during our final interview:

> *The biggest issue that I saw, especially on the key terms-- and well also on the Google Earth because they had to do searches for various things on the Internet and on Google Earth is spelling and typing … But it's the spelling that really kind of threw them off and knowing how to put in search terms that are correctly spelled or-- I mean, some of their spelling was so off that Google didn't even have a suggestion for them.*

A senior faculty member reported about observing student struggles on the day of Activity 3:

> *Some found it challenging to find the answers to all questions asked. Again, this might have been the fault of not knowing/determining the best search words to lead to the info sought*

Once research data was evaluated for evidence of student technology literacy, the CAD technology activities and corresponding data were examined to determine any influence upon students' technology literacy demonstrations overall.

Influence of Activities on Student Participants' Technology Literacy

The technology activities developed for CAD influenced student participants technology literacy primarily by allowing students to demonstrate Internet searching skills and online research, which are critical aspects of technology literacy. Review of video collected for each technology activity revealed most of the instruction during Activities 1, 2, and 4 was devoted to guiding students while Internet searching. Activity 3 was the only activity that provided website references ahead of time (so students could devote more time toward the creating the group powerpoint). Students who completed

Activities 1, 2, and 4 with little difficulty still needed assistance with the evaluation of Internet materials. For instance, during Activity 1, CAD faculty TD instructs students in distinguishing between different websites (and their sources) by noting the domain addresses of .gov, .edu., and .com (Video Log 1, 11:02). Students with poor technology skills (developing poor/non related search terms, misspelling the terms and not using spellcheck, or poor typing skills) who struggled during the activity, more often than not needed guidance on basic use of use search engines along with online information literacy. For example in Activity 1, CAD faculty EF introduces students to using commas and quotation marks for searching—which is a new concept to many of them (Video Log 1, 14:00). For Activity 2, a student asks EF how to spell "abandoned" after several unsuccessful search attempts trying to spell it on her own (Video Log 2, 5:15).

The culturally informed technology activities within CAD influenced student technology literacy by allowing students to reinforce and practice their Internet search skills at any level—whether their skills in this domain were obtained prior to or during the debate technology activities. The four activities occurred about every two weeks, which permitted traditional methods of debate instruction to continue, but students would also not forget or become so distanced from the Internet search skills learned. This was particularly important regarding the evaluation of Internet material. Faculty noted gradual improvement in this area, and overall improvement in generating relevant search terms. Regarding Activity 4, a faculty member noted that day on her REF sheet:

> *I also noticed that the students have become a little more savvy when researching on-line from previous exercises we have done in CAD.*

One of the students who seemed to improve online research skills was David (8th grade male) whose methods during the first debate technology activity were cause for concern (FN 045, April 2009).

Activity Characteristics That May Enhance Student Technology Literacy

When this research study was originally conceptualized, I anticipated that the culturally informed technology activities would cover a variety of technology literacy skills (such as word processing, information literacy, calculations and chart development, for example) , and one activity may display more success with impacting student technology skills than another. But the analysis during the activity design process (detailed in Chapter 5) warranted that Internet searching tasks were the best activities to support debate instruction and expand on students' reported technology skills. Since all of the activities featured this domain, there was no designed measure or display of diverse technology skills, and the criteria for activities that might best enhance student technology literacy emerged as more non-technical characteristics. Activities with distinguishing impact on students had more to do with (1) the students' engagement with the activity, and (2) motivation for completing the activity.

Evidence of Student Engagement

Student engagement in the classroom can be considered a psychological process. Marks (2000) refers to it as a "growth producing activity where an individual allocates attention in active response to the environment" (p. 155). Students' level of interaction with CAD faculty, other students and lesson materials would constitute engagement during the technology activities in this study. The students in this study were observed as being very engaged during the technology activities specifically with (a) the technology itself (equipment and software) and (b) the activity lesson content. In terms of equipment, it seemed that getting individual hands-on time with laptops was a rarefied thing for these students, and after the initial surprise that they would be allowed to work on CAD faculty laptops—the students eagerly looked forward to future activities. Students had more hands-on, exploratory computer access in CAD than in school. Observed technology activities during school were the drill and practice technology applications. Interviews with students revealed that they used the desktop computers in classrooms or the media center more often. While laptop carts were available at the school, the teacher sponsoring debate in her classroom had this to say about them:

> *There's a classroom set of 25 laptops that a teacher can go check out from the media center, and have her kids, each one having a laptop, so it's like it's mobile, a mobile computer lab. I tried once, and it was so[loud sigh], it took more time for me to set them up and make sure that they were running correctly, that I just picked up the kids and took them to the computer lab.*

This teacher's frustration could be shared among many others, and if the other teachers feel the same way—it means most of the student's hands-on experience with technology at this particular school takes place on desktop computers. This implies the CAD technology activities with students using laptops were a real treat. CAD faculty were loaning their personal machines, and there was a diverse mix for the students to use, including an Apple Macbook and PC tablet with writing on screen capability. The other technology of note that engaged students was Google Earth. All students had previously used the other applications required during the activities—Internet Explorer or Mozilla, and Microsoft PowerPoint—but Google Earth was brand-new and intriguing to them. When asked during the final interview if she enjoyed the technology activities during debate, Princess enthusiastically shared:

> *Yes, especially Google Earth   It was just like looking at earth from a whole different view. Bigger! I mean you can zoom in, you can zoom out and you can see your house. You can see the school, everything.*

One faculty member put it best:

> *The strength of this activity is that the student, when using Google Earth, is extremely engaged. Using the history function of Google Earth is such a great visual aid for the brownfield lesson. Many of the students used Atlantic Station as a visual aid since the imagery dates back to 1993, before the renovations.*

This faculty member also reported that for one student in particular, *"when using the computer, [he] was far more engaged in the activity than normal."* Donald was known for having problems focusing on tasks and being still for regular afterschool debate sessions. He calmly participated in the Google Earth technology activity, and had no problems keeping on task and working with other group members (FN 035, Mar 2009). Unfortunately Donald was absent for the other technology activity days, so we missed the opportunity to view his behavior during other technology activities.

Students were also very engaged with some of the technology activity lesson content. If a student believes his class work is authentic, meaning is "connected to the world outside of the classroom" (Marks, 2000), and then student engagement is enhanced. Activity 3 (Bullying PowerPoint) and Activity 4 (Mock Trial Career Search) elicited more student engagement with the content than the use of technology. This was because students connected to the topics of bullying and careers. The Bullying

PowerPoint technology activity had students research different aspects of peer bullying, including specific roles necessary for bullying to occur, coping strategies for victims, and eradication strategies for schools. CAD faculty reflected after the Activity 3:

> *The powerpoint activity was great for topics that connected with kids. The group I worked with defined the roles of bullies, victims, bystanders, & mediator … don't think they realized bystanders contribute to the [bullying] situation as much as they do.*

All students present for the activity shared they experienced either (1)being a bully, (2) being a victim, or (3) having close friends involved with bullying—which made them relate to the content more. Most students, however, reported learning something they did not know previously about bullying with the different topics presented, and reported this information would likely be something they could use both in and out of school. (FN 039, Apr 2009). For the Career Search (Activity 4), CAD faculty reported afterwards:

> *The students were very engaged the entire time. I think searching career paths is also a subject matter that our students have not devoted a lot of time or energy to exploring. I think for some kids it is a great introduction to the "career goals" conversation that they may not get at home. For other students, it is a great supplement to the conversation they have already began with their families.*

The level of student engagement with the technology activities was an eye-opening experience to the CAD faculty. When asked if using technology within afterschool debate met her expectations, or did it reveal anything she was unaware of when it came to the students, one senior faculty member replied:

> *Knowing that they like computers, and that it makes some of them more willing to learn than… because some people, some students, are just kind of difficult to gauge, to read, to determine how you can reach them more. But it seems to me*

that everybody present on those days that we did the activities really got into them.

Evidence of Student Motivation

Student motivation is considered the core of teaching and learning. Maehr and Meyer (1997) define it as "personal investment", which reflects a student's direction, intensity, persistence with regard to a learning activity. With regard to motivation, serious debaters—students who attended afterschool debate session most regularly and competed in Saturday debate tournaments reported enjoying Activity 1 (Debate Vocabulary Terms search) and Activity 3 (Bullying PowerPoint) the most. They cited as a motivating factor learning more information that made them better at debate. David, an 8th grader and tournament debater, enthusiastically shared this during an interview:

> *It gives you information outside of the packet. You don't have to look at the paper all the time … Yes [do more computer stuff], because like I can get more information about the topic and I could say some stuff that's not in the packet that someone else might not know.*

Casual CAD attendees, defined as ones who came to afterschool debate but had sporadic attendance and did not debate competitively on the weekends, reported enjoying Activity 2 (Google Earth) and Activity 4 (Mock Trial Career Day) the most. While these activities supported topics relevant to this year's debate topics (Brownfield concept for Activity 2; professions featured in the mock trial case for Activity 4), the activities also featured exploration of topics personally relevant to individual students. Activity 2 asked for students to use Google Earth to locate other places in addition to the provided Brownfield locations, like their home or relative's house. The activity also suggested to students this other place could be a city they want to visit in the future. Sandra, a 7th grader despite being a strong public speaker during the sessions only attended sporadically, submitted the following answers on her worksheet for Activity 2, as presented in Table 22 below:

Table 22: *Sandra's Activity 2 Worksheet Response about Geographic Area of Interest*

Locate a 2nd area of interest to you. What is this location?	**Why did you choose this site?**	**Were you surprised by its historical timeline?**	**What was interesting to you about this search?**
Tokyo Tower, Japan	*I really want to visit the city of Tokyo and Tokyo Tower. I think that Tokyo Tower might just be a look-a-like to the Eiffle (sic) Tower, ecexpt (sic) its in Tokyo, Japan. The reason why I want to go here is because I'm interested in the Japanese culture.*	*Yes because it was opened up in 1958 and then became the world's largest self-surporting (sic) steel tower.*	*It has 24 broadcast waves. With it being built, it helped Japan with its tourism. Also that it weighs about 4,000 tons. There's even a four story building under it.*

Sandra's responses indicate a previous interest in the city of Tokyo, and Activity 2 provided her an unprecedented opportunity to view the geography and urban centers, and learn historical information about the international landmark. Some weeks later, Sandra enthusiastically shared that the "Google Earth thing" was by far her favorite thing about afterschool debate this year (FN 046, May 09).

For Activity 4, students could research career roles featured in the Spring Mock Trial activity, which included doctor, lawyer, judge, counselor, psychologist, or school security officer. The students were also instructed to research other careers if none of those appealed to them. Some of the other professions researched included high school math teacher and professional football player. Oscar, an 8th grade athlete (football and track) who searched the latter, was quite surprised.

> *And for the career [activity] , I liked it because, like, I search what I want to do for a living, and I found out how much money they make and what they do on a daily basis [pause] …but they work <u>really</u> hard <u>all year</u>*

A CAD faculty member also noted:

> *The students really latched on to this exercise (researching careers). Most of the students were able to find information that was useful (and surprising) to them about career paths they chose. (EF)*

CAD faculty also noted this heightened interest for the career search activity, although some were disappointed by the career motives of the students. A senior CAD faculty and retired middle school teacher shared how the discovery of accurate career information did not match the some of the students' expectations:

> *The strengths were the discovery of the requirements (academic) for certain positions (which for some meant perhaps less consideration as a career choice and attempting to determine what motivates one to choose that field, was more of a question than some might have thought at first glance. Most could think of one or maybe two reasons why persons considered certain careers but for some, they really had to think about it a little. As said before, some began to consider changing their minds about choices based on information found. In some cases, their reasons were not as mature as I would have hoped. (TD)*

<u>Additional Emergent Themes</u>

While collecting and analyzing data from the participants' experiences, I recognized themes that were relevant to this investigation, but outside of the focused coding scope with regard to the technology literacy guiding research questions. The additional themes are classroom management, use of curriculum materials, and visual instruction within afterschool debate.

Classroom Management

Classroom management calls for not only delivering instruction, but also maintaining a positive learning environment, working with behavioral problems, and dealing with a range of challenges in the classroom (Marzano & Marzano, 2003). Research supports the importance of classroom management for student achievement, with greater influence than curriculum (Marzano & Marzano, 2003). Instructional design also calls for consideration of classroom management (Dick, Carey & Carey, 2001; Seels & Glasgow, 1998). For this after-school group, a major factor in the success of a learning activity, technology or otherwise, was having a good student to faculty ratio. A low student to faculty ratio kept faculty aware and in charge of what was happening in the classroom, which was important given the daily interruptions, distractions and occasional chaos observed and described by the researcher in Chapter 4. The student to faculty ratio was factored into the instructional design of the technology activities by creating student groups where each faculty member led a group of no more than four students. While little was said about the classroom management aspect of the proposed activities during the design process, the faculty applauded it after the implementation. The excerpts below are from the Faculty REF sheets completed after each technology activity:

> *Allowing students to explore and determine what search words would lead to information needed caused them to grow but the monitoring kept them on task and operating within time frame suggested.*

> *Overall, thought today went very well. Students learned a great deal in a short amount of time. Teachers were well prepared and & ownership of the activity.*

Unfortunately, an undesirable classroom management issue was revealed during the intervention—the students did not want to share the laptop computers. Each activity was structured to give students about 15 minutes of hands-on time with the computer, with other group members providing commentary and writing support. Each person rotated to a support role after their hands on time. By the second activity students were getting territorial about the machines they used and did not want to share or relinquish their time. Three separate faculty members shared similar frustrations on their REF sheet regarding Activity 2:

> *The Irving Butler students often are unwilling to work in groups, which puts a strain on the resources since there are not enough computers with Google Earth to go around*
>
> *The level of skills development was worthy of note. Collaboration is a challenge sometime. One wants to do it all. SUPERVISION key.*
>
> *HA students need more practice working collaboratively*

While students were respectful of the equipment itself, there were heated arguments between the adolescents about taking too long, or "hijacking" (FN 035, Mar 2009) someone else's hands on time. This disruptive behavior actually took up valuable session time, as described by faculty:

> *I think of the time it may have taken for students to get acclimated to using the technology or the concerns of whose laptops we're going to use today, whose*

> *working with who, those all are more logistical things that may have impacted the kids in terms of the amount of time that they had to use technology or it impacted them because they don't use technology enough*

This was surprising to the faculty, as group activities and shared time with faculty members was the primary teaching strategy in after-school debate. Students also shared print resources (in the form of tournament evidence) all the time without tension. Despite the arguing, most faculty acknowledged that having a one-to-one ratio of students and computers may not be the best solution for learning. Two faculty members shared similar comments during their final interview:

> *I mean the biggest one [concern or issue] that I've already mentioned is just the willingness to work together and that's, you know, indicative of middle school and the Irving Butler kids in particular, but that-- with the lack of resources that we have-- and I'm not saying that every child should have a computer and that will solve our problems because they need to learn how to work together and, you know, but that has put a, you know, a little bit of a speed bump in getting everybody engaged in the activities at all times. (EF Faculty Interview 4, May 2009)*

> *…it would've been less productive for those kids if they each had their own laptop, each had their own computer and they just kind of was-- "Go work on this for 10 minutes", it wouldn't have been probably a productive 10 minutes for many of them… from the moment they had some challenges there was a staff member there to kind of help them and some other peers that helped encourage them, so. (QT Faculty Interview 4, May 2009)*

Curriculum Materials

Examples of curriculum materials are textbooks, instructional subject units, and daily lesson plans (Davis & Krajeik, 2005). Consideration and selection of necessary curriculum materials was part of the instructional design process for this technology intervention, as described in Chapter 5. Four lesson plans (Appendix I) were distributed to the CAD faculty prior to each Tech Day activity. Given the unpredictable climate of the CAD sessions and variable staff assignments, faculty appreciated the use of the lesson plans and supporting material for the technology activities. While all of the faculty acknowledged they could complete these activities on their own, the materials helped keep them on task—and kept the focus on proper, detailed search strategies for students. Many faculty expressed appreciation and high regard for the lesson materials provided during their interviews, with excerpts featured below:

> *Handout facilitated Internet searches and helped guide student use of the computers/Internet*
>
> *The curriculum is excellent, if all concerns were minimized or eliminated. Much value!!!*
>
> *Great--well organized curriculum with standards & objectives--serious stuff :) Helped organize and maintain the flow of the day.*
>
> *Having a handout to guide student's internet search helped facilitate the activity and keep students focused. It also guided students to complete detailed searches.*
>
> *I think the way the lesson was structured, I don't know if there was so much technology, actually, but just giving the students a chance after they've participated in an activity to share their conclusions and their finding with one another, I think facilitated a level of information sharing. I think also there was, because it was set up in a competitive format, the students that worked in the same group also were proud of communicating more so with each other, or emphasized communicating, because they were focused on a common goal within that group. So I think that facilitated more conversation as well. I don't know if that's so much the technology. It would be hard to say, but I think it definitely is the combination and the construction of the activity and the layout of the lesson plan facilitated that.*

Impact of Visual Instruction for Afterschool Debate

Visual instruction, also referred to as visual education, uses illustrative media as part of the teaching process. The Visual Instruction Movement within U.S. public education started in the early 1900's with the use of lantern slide projectors and stereograph viewers, and technology advances with LCD projectors and digital media have continued to enhance classrooms (Reiser, 1987). Reiser (1987) asserts that "part of the value of audiovisual materials lies in their ability to present concepts in a concrete manner" (p. 14). The technology intervention for the CAD community and more specifically, Activity 2 (Google Earth), demonstrated the value of visual instruction. Faculty members were impressed and appreciative of using this approach to present the Brownfield concept. Brownfields are former industrial sites that have been closed or abandoned, and are currently not developed. Any development would be complex and require considerable financial investment, as many sites have environmental concerns (Wernstedt etal, 2006). Despite revisiting the concept in several CAD session lectures and repeated evidence readings, students still struggled with understanding what exactly a Brownfield was. Activity 2 seemed to resolve the issue for students by providing a visual example of redeveloped brownfields in the U.S. Faculty were effusive in describing the turnaround in student comprehension on their REF sheets, with example responses below:

> *Using the history function of Google Earth is such a great visual aid for the Brownfield lesson. Many of the students used Atlantic Station as a visual aid since the imagery dates back to 1993, before the renovations.*

> *I think technology, especially in the way we used it, gave them a very hands-on and very visual way of learning things, especially the Google Earth and Brownfields exercise where they were able to do the timeline and see how Atlantic Station was a train station and then was able to look at all the different pieces in the history of it to become a mall, essentially.*
>
> *But I think that especially on the Google Earth, it gave them a visual to what we had been studying all year with the Brownfields. We can talk about it all we want, but to actually see Atlantic Station change from a train station to a shopping center was an eye opener for some of the kids, especially the ones that had not been to debate tournaments and they didn't really care that much.*

Summary

The culturally informed activities influenced student participants' technology literacy activities specifically within Internet searching and online research. The activities that might best enhance student participants' technology literacy are activities that elicited a high level of student engagement. Another primary factor for enhancing students' technology literacy would be implementing activities that kept students' motivation levels high—whether students were serious debaters or casual CAD attendees. Other relevant findings included classroom management issues during the implementation of the technology activities, the importance of curriculum materials for faculty and student guidance, and the impact of visual teaching materials within debate instruction.

In the remaining chapter, I discuss the findings for each of the research questions and consider them in view of the literature, reflect on limitations of the study, and present the study implications and suggestions for future research efforts. This discussion is part of *Evaluation* within the instructional design process.

CHAPTER EIGHT

EVALUATION: DISCUSSION & RECOMMENDATIONS

During the course of this dissertation, I sought to collect deeper understandings and insights into technology supported activities and technology literacy development as they occur within a particular context—an urban middle school debate program. In this chapter, I revisit the guiding questions and findings with respect to research literature, and discuss my interpretation of the data. Finally, I summarize the limitations and significance of the study, and present avenues for future research. The guiding questions for this research study were:

1. What occurs in a CAD program community when an ethnographic approach to instructional design is implemented?
2. What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?

Evaluation

The last phase of ADDIE, *Evaluation*, applies to determining the effectiveness of the designed instruction (Seels & Glasgow, 1998). As discussed earlier, formative evaluation took place during the *Design* and *Implementation* phases, in order to refine the activities. The activities were refined based on CAD faculty feedback from AUDL

Google Group correspondence, Staff Training, and participant interview #3. The major revisions arising from formative evaluation were (1) Activity 3 being rescheduled, and (2) Activities 3 and 4 being redesigned to focus on the Mock Trial topic of bullying instead of the original debate tournament season topic of alternative energy and Brownfields.

Once the instructional intervention has been implemented, summative evaluation takes place to investigate the following: *What is the impact?* and *What needs to change?* (Seels & Glasgow, 1998). Evaluation regarding the impact of the four technology activities is performed within the context of this qualitative research study. This chapter will focus on discussion of the study findings with regard to the guiding research questions for this inquiry:

1. What occurs in a CAD program community when an ethnographic approach to instructional design is implemented?
2. What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?

Research Question 1

What occurs in a CAD program community when an ethnographic approach to instructional design is implemented?

This research effort would be remiss without how an ethnographic approach to instructional design, instead of traditional approaches, affected the outcomes. In this case, the QID Model for Urban Contexts provided multiple and varied opportunities for student demonstration of Internet search and online research skills. This approach revealed the disconnect between students' estimation of their technology skills, and evidence of their skills collected during this study. Secondly and more telling was the evidence of what barriers emerged that hindered students' online research ability.

Student Participants' Knowledge Base of Technology Literacy

The existing student knowledge of technology literacy content and skills was gathered during the *Analysis* phase of this study. More specifically, an understanding of the existing knowledge base was necessary to inform the design of the technology activities for this CAD community. However, the disconnect between student self-reporting of technology literacy/expertise and other evidence collected by the researcher and provided by faculty, was unexpected but highly relevant.

Field notes, artifacts, and responses from technology literacy assessment and interviews were coded for evidence of technology literacy, per three definitions by the GaDOE: (a) knowledge of technology, (b) performance using technology, (d) production of a project integrating team-based technology skill (GaDOE definition (c) development of a portfolio of competed activities, was excluded due to time constraints). These findings were presented in detail in Chapter 5. The interviews and technology assessment revealed students had a good knowledge of software applications, and for what tasks they were used for. Incorrect responses on the technology assessment and observations during the technology activities, however, revealed a lack of skills regarding specific software functionality/tools, such as spell-check and formatting tools (bold, underline, etc). During the interviews, all students replied they had used desktops and laptop machines, printers, digital cameras and other technology equipment. However on the technology assessment, students demonstrated a lack of understanding of how technology equipment works together in a system—that a printer is an output device, keyboard and mouse are input devices, a modem is necessary for Internet access and so on.

The technology literacy knowledge base exhibited by debate students in this study is best described as “surface knowledge”. The middle school students are aware of using MS Word for language arts and other writing activities; MS Excel for mathematical activities; MS PowerPoint to produce slides; and Internet Explorer as their browser of choice. The evidence of their existing knowledge of technology literacy was all over the place; triangulation of the data illustrated contradictory abilities, as illustrated in the technology literacy dimension figure, adapted from Garmire & Pearson (2006) below:

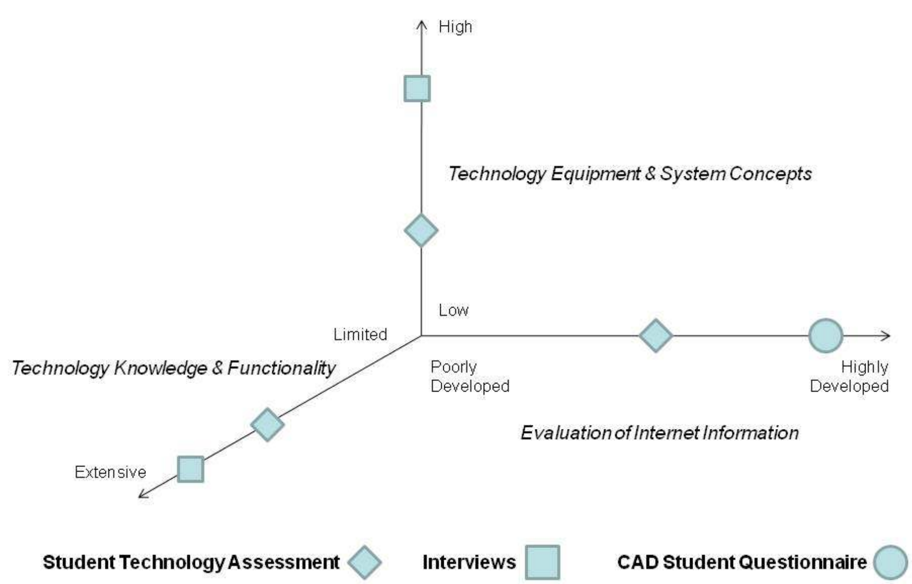

Figure 7: Technology Literacy Dimensions & Study Data

Each axis represents a category within technology literacy, as presented earlier in Chapter 5: Critical Thinking, Problem Solving and Decision-Making, Technology Operations and Concepts, and Research and Information Fluency. Debate students self-reported their Internet research skills as excellent, but their answers on the Technology Literacy assessment from this investigation showed they lacked evaluation skills regarding Internet material. Students during interviews replied that their technology use as extensive, but Technology Literacy assessment scores showed lack of understanding of technology within system and functional uses. Regarding technology knowledge, students balanced low scores on questions regarding functional tools and tasks, with scoring high on questions about identifying software applications with general uses. This indicated that students had trouble reconciling what (1) excellent research skills are and (2) extensive technology use versus limited technology knowledge. The Student Technology Literacy assessment included all of the dimensions; the participant interviews included Critical Thinking, Problem Solving and Decision-Making , and Technology Operations and Concepts. The CAD student questionnaire (which was not developed by the researcher for study purposes like the previous instruments) only included aspects regarding Research and Information Fluency.

Interviews with some of CAD students and their language arts teacher (who also sponsored afterschool debate in her classroom) revealed the kids are receiving a “connections” course in technology at some point during grades 6-8. They also have occasional use of technology within their subject matter classes during the regular school day, although significant information about how much and for what subject was not captured in this study. Additional exposure to meaningful technology learning experiences, such as the technology intervention described in this study, would certainly supplement their technology literacy development.

The debate students represent a small population within the school, and also include 6th and 7th graders, who will not be formally tested for technology literacy until they reach the 8th grade. This study also sought evidence of technology literacy, versus demonstration of technology literacy competency. Technology literacy competency is the desired benchmark for the 8th grade tests, and definition of competency varies according to schools and districts (GaDOE, 2009). During the course of this study, 8th grade technology literacy score reports for schools and districts were made publicly available on the Georgia Department of Education's website. When the 8th grade technology literacy assessment scores are compared for this research site against the district and state scores, the implication is troubling. Table 23 displays the student percentages of technology literacy competency achieved below:

Table 23: *2006-2008 Technology Literacy Competency Scores for School Research Site, District, and State*

Technology Report (Year)	Irving Butler Middle School	District	Georgia
2006	15.94%	24.17%	65.67%
2007	11.79%	30.34%	63.56%
2008	12.63%	38.72%	63.45%

The table lists the percentage of the surveyed 8th grade student body who earned scores at the technology literacy competency level, but the definition or minimum score requirement for competency was not outlined in the reports. The implication is that this school is severely behind when it comes to 8th grade technology literacy competency, and is illustrative of many underserved schools within the state of Georgia. These underserved schools may suffer from the barriers to technology supported instruction in urban classrooms, as cited by Songer and colleagues (2002): inadequate space and materials, inadequate time, low content knowledge among teachers, large class sizes, high student and teacher mobility, limited instructional freedom, and unreliable Internet connectivity (p. 148). Despite CAD having several of these barriers, they were able to implement a technology supported curriculum during this investigation. There is still much work to be done to develop technology literacy for these students—but the findings of this research support these students can rise to the challenge.

Barriers to Students' Online Research

Instructional design of the CAD technology activities took into consideration guiding students toward generating effective search terms, and evaluating search results for authenticity, bias, and purpose—but not addressing poor spelling and typing. Published research regarding investigation of middle school students' practices while Internet searching addresses students strategies for constructing search strings and recovering from unsuccessful search attempts (Guinee et al, 2003). It has also been observed and documented that when students use search engines to locate information online, successful use hinges on selecting effective keywords. One of the most successful recovery techniques applied after an unsuccessful Internet search is checking keyword spelling (Guinee et al, 2003).

A review of CAD students' written responses on surveys and artifacts from this study does demonstrate poor spelling. Also, only 22% of CAD students surveyed correctly answered the question regarding the spellcheck function on the Student Technology Literacy Assessment—which would demonstrate the majority of students do not know where to locate it within a MS Office software application, and what it was used for—meaning they do not know where to get help with spelling. Poor typing while doing Internet searching is another stumbling block for these kids in terms of communication. Unfortunately, the study data collected did not document the detailed spelling errors made by the students during the search activities. It is unknown whether the spelling errors are related to the "complexity of language" (Wolf, 2008; p. 64) observed within the CAD environment. In a previous qualitative study, Wolf (2008) documented three distinct vernacular styles present among CAD students and faculty: the vernacular of youth/popular culture, African American Vernacular English (AAVE), and debate vernacular. The youth/popular culture vernacular primarily used contemporary slang and references to songs and artists of the moment such as Rihanna, T.I. and Alicia Keys. These references were noted in Chapter 4 of this dissertation; however, Wolf also documented use of slang such as "big things pop'n" (meaning a pulling off a major accomplishment), which is not spelled using standard English. AAVE is distinguished more by syntax and grammar, and debate vernacular is noted as the more formalized language, articulation and structure required for debate competition (Wolf, 2008). Wolf's research also points out that while all three vernaculars emerged during that study, students (and faculty) "code shifted" between the vernaculars as appropriate. For CAD students during this ethnography, however, their use of non standard language may have spilled over into their Internet search and typing techniques. Further study investigating what search terms were used, misspelled, and other online research behavior by CAD students is warranted.

Another observation worthy of note: students in this study rated themselves as being above average Internet researchers, but observations, student artifacts and technology literacy assessment scores did not always support their ratings. This may be rooted in their perception of a *successful* Internet research effort being less than desired by scholarship standards. Students may associate a successful search with simply obtaining lots of results, without taking into account the relevancy and purpose of the results with respect to their inquiry. Since the technology intervention is also geared toward introducing and reinforcing this concept, students may eventually become aware that their previous search efforts were not effective or successful. Coupled with spelling errors and roadblocks during online searching, students may think differently on the next CAD questionnaire about rating their Internet research capabilities. Students need to be able to calibrate what they know and what they do not know when it comes to online information literacy. Without addressing these issues head on, students who recognize their Internet search attempts are mediocre may become more frustrated and abandon their scholastic inquiry online. Guinee et al (2003) writes:

> In absence of sufficient, ongoing instruction and support, student experiencing difficulty searching on the Web fall back on their time-tested practices (Fidel et al, 1999). They ask for help ... or persevere with search results from unsuccessful keyword queries. To alleviate this problem, students need to become more metacognitive about their searching so they

> understand what makes a successful or unsuccessful search. This involves learning to recognize the patterns of unsuccessful searches and to apply techniques for transitioning to more effective one, such as trying new keywords or search engines.

The metacognitive aspect of this lesson can be initiated by regular use of technology activities and CAD faculty. Poor spelling is also indicative of literacy challenges (Block, 2003), which has already been identified by CAD faculty and administrators as a problem for many debate students in this community. CAD faculty and future technology lesson activities can work with students more specifically so that they understand how to trouble shoot their Internet search stumbles, which are skills they can use in other classes now and in future grades. The promising outlook is that some CAD students (David for example) were positively influenced over the 12 weeks of the technology implementation, in the form of becoming more confident with technology, more skilled doing Internet research, and using technology more for academic pursuits. Refining the technology activities to give attention to developing and reinforcing Internet research troubleshooting skills could have desirable results.

QID Model for Urban Contexts

The Qualitative Instructional Design (QID) Model for Urban Contexts introduced in this dissertation developed from considering the contextual factors and the research questions posed. Savenye & Robinson (1997) contend that use of qualitative methods is driven by the researcher and the study at hand, instead of vice versa. Qualitative approaches are not new to educational technology research, as designers commonly listened to participants and recorded events that occurred prior, during and post implementation of technology interventions (Savenye and Robinson, 1997). However, published articles describing qualitative methods within instructional technology research are more rare. A meta-analysis by Driscoll and Dick (1999) revealed that "fewer than half of the articles published in ETR&D [*Educational Technology Research & Development]* from 1992 through 1996 were empirical in nature (14)." ETR&D is considered the leading research journal in our field, and article topics and methods typically reflect current trends in instructional technology research. Driscoll & Dick lament the lack of published qualitative approaches to instructional design and technology, and further contend:

> It can be noted as well that interventions intended for public school use have rarely been systematically designed, developed and formatively evaluated prior to the does-it-work-in-the-classroom evaluation. Thus, while the materials may be relevant to learners, nothing of value has been learned about the instructional design process. That is, little knowledge has been generated about how to design an innovation to facilitate learning of a particular desired outcome by a particular group of learners in a particular context (15).

The research presented here meets the criteria of designing an innovation to enhance technology literacy development for middle schools students within the Computer Assisted Debate program.

This study is also illustrative of design based research which has specific characteristics (Reeves et al, 2005; Wang & Hannifin, 2005): (a) research involves complex, authentic problems, (b) design/development of interventions, products, processes tied to theory, (c) uses formative methodology vs. formative evaluation, and (d) produces "proto-theories" and/or generalizable heuristics or recommendations for defined applications/scenarios. With respect to these characteristics, the QID Model for Urban Contexts used for this research qualifies as design based research. The anchoring element of the QID Model—developing an ethnographic context—calls for prolonged engagement in naturalistic contexts that feature complex and authentic problems. This phase also speaks to the participatory nature between researcher, students and faculty; and calls for a marriage of ethnographic data and established instructional design methods. The *Design and Development* phase were tied to social constructivist pedagogy and theory, along with the findings from the ethnographic context. Formative methodology occurred during each phase of the QID Model--with CAD technology activities being revised along the way. The recommendations for future design of CAD technology activities and with producing generalizable recommendations for other defined scenarios within after-school debate instruction. Thus, I am proposing that the QID Model for Urban Contexts, and the research presented in this dissertation, contributes to the growing body of design based and qualitative empirical research for instructional design and technology.

Research Question 2

What is the impact of the culturally informed technology activities on the students and faculty within the CAD program community?

An evaluation of this instructional intervention would not be complete without considering what needs to change going forward with respect to the designed technology activities. Activities best for development of Technology Literacy in this context are ones designed to elicit high student engagement and motivation. It is not surprising these characteristics would go hand in hand, as most motivation researchers consider engagement behavior to be a visual manifestation of motivated students (Skinner, Kindermann & Furrer, 2009).

Research literature surrounding engagement supports the notion that engagement is tied to the personal backgrounds of students. One trend is worthy of note: while middle school students, regardless of race, do not display significant differences regarding academic engagement, minority students from low income homes are more likely to be disengaged in the classroom (Marks, 2000). The CAD students would fall into the latter category, and have conveyed experiences about the regular school day that are characteristic of disengagement, and sometimes displayed disengaged behavior within the CAD afterschool sessions. Chapter 5 discusses student responses regarding things they dislike about school, including “boring assignments”, “the work”, and the lack of respect showed to them. The CAD faculty reported a high level of engagement from all students on all four technology activity days, however. These activities provided a reprieve for some who enjoy attending debate after-school, but not personally engaging in debate itself. The research findings point toward and support the claim that the best instruction occurs when the discovery process is personally and culturally relevant to the student or class community (Duffy & Cunningham, 1996). The enthusiasm and level of student engagement demonstrated by students and observed by faculty in completing the technology activities were stimulating and powerful. While this was desired, it was not entirely expected, due to the varying and unpredictable level of engagement during regular CAD afterschool days. The level of enthusiasm and engagement for Tech Days may have been in part, because these were new activities conducted within CAD, and because of the hands-on access to the technology itself. Regardless, the impact of the activities stuck with the kids, and they voiced that they look forward to more technology activities within debate. Furthermore, Wilson and colleagues rationalize the aspect of engagement within technology supported instruction:

> While *appeal* suggests merely the ability to draw learners to the experience (a unidirectional force), *engagement* suggests a reciprocating relationship that changes the nature of the experience. Rather than just being sufficiently attracted to pay attention, learners invest creative effort and emotional commitment—and a willingness to risk in anticipation of valued outcomes. (Wilson et al, 2008)

The risk involved for some students may have been not being comfortable with technology, or not confident in their debate/public speaking skills. On Tech Days all kids were drawn into the Internet research activities—even those who had a history of being indifferent or disruptive, like Donald (described in Chapter 6). Kozaitis (1997) puts it best by stating "A lesson that is accessible, interesting, and fun engages students who might otherwise be bored and oppositional in the classroom." (p. 289)

Debate students were not only engaged, but also motivated to participate in the technology activities. As stated before, student work in afterschool debate was not graded, and there was no penalty for not participating. The CAD students were excited to use the laptops, but obviously felt that the content in the technology activities had a close connection to their world. A key factor of successful technology supported learning is not so much how the content itself is presented, but the degree to which students are motivated to take advantage of the environment in order to achieve their personal learning goals (Mihalica & Milea, 2007; Liang & Zhou, 2009). While the exploratory quality of the Internet motivated students to discover and to connect learning to their own lives, the lesson content selected for the activity also spoke to the students in a personally relevant way, and encouraged them to find out more to advance their own knowledge of the topic. The findings from this study indicated distinct motivational factors based on the type of student present at CAD. Serious debaters were motivated by technology activities that advanced their knowledge of the debate resolution and corresponding evidence. Casual attendees who participated without competitively debating were more motivated by activities that advanced their personal knowledge of a topic or subject individually relevant to them.

Research literature points to raising engagement and motivation levels for meaningful technology supported learning (Britton et al, 2005; Asburn & Floden, 2006)—but what does that really mean? A conceptualization of engagement and motivation is necessary for teachers to evaluate the success of an education activity, student learning difficulties, or recommend appropriate curriculum changes (Skinner, Kindermann, & Furrer, 2009). For this study, in this context, engagement and motivation attributes for these students were revealed during the technology intervention. Understanding this criteria gives more detail to instructional designers and debate faculty aiming for corresponding results in similar contexts.

Additional Study Findings

Wilson and colleagues (2008) propose that all instructional outcomes, whether defined or unexpected, are all crucial to understanding instructional systems. This study revealed the unanticipated value of classroom management and curriculum materials, while also shedding light on use of visual instruction within afterschool debate.

The initial literature review (Chapter 2) of this dissertation reported that a typical middle school maintains most student technology resources in shared computer labs, and classrooms have one or two computers (Shields & Behrman, 2000; Kleiman, 2004). Schools with large minority student populations are using computers mostly for drill and practice exercises (1998)—which is comparable to what "privileged schools" in the 1960's used with regard to technology. Feedback from students, faculty and staff reflected the typical shared middle school technology access and drill/practice technology applications were the case at Irving Butler in 2008-2009. This image was also reinforced by the observed emphasis on computer use during school wide preparation for standardized testing. This use of technology to drive performance on test scores is also reported in the initial literature review (Kellner, 2001; Kalzantis et al, 2003; Kleiman, 2004). This leads one to believe that the culturally informed technology activities within afterschool debate, with laptops featuring the latest versions of software, coupled with exploratory learning instead of drill and practice, was a novel and appealing learning experience for these kids. This appeal and enthusiasm, however, combined with typical adolescent behavior, led to issues regarding classroom management. Hew and Brush (2007) conducted a meta-analysis of research focused on K-12 technology integration, and identified lack of technology-related classroom management knowledge and skill of teachers as a barrier:

> Although the rules and procedures established in a non-technology integrated classroom can apply in a technology-integrated one, there are additional rules and

> procedures to be established in the latter …. Teachers need to be equipped with technology-related classroom management skills such as how to organize the class effectively so that students have equal opportunities to use computers, or what to do if students run into technical problems when working on computers. (p. 228)

CAD faculty was good at troubleshooting technical issues, but unprepared for the disruptive student behavior about sharing the laptop resources. One way to deal with this issue would be to add instruction and guidance specifically geared toward working collaboratively with technology. While the activities were grounded in a social constructivist approach, and generally collaborative in nature, there was no specific reference to collaborative learning with technology. This research effort was based within the cultural frameworks existing in the CAD community. The culturally informed technology activities served to promote and motivate learning within the community, per social constructivist theory (Cole and Engstrom, 1993; Saxe, 1992; Cunningham et al, 1993). Asburn and Floden (2006) state collaborative work within meaningful learning with technology is characterized as "small groups of students working on common tasks to achieve learning goals … they have content focused conversations with their peers to share information, explain their ideas, examine multiple perspectives, and negotiate common meanings, and they think together and help one another in posing and investigating questions, solving problems, and creating products together" (p. 22). Asburn and Floden go further to say

> Teachers need to know how to develop students' skills and motivation to function effectively in collaborative work groups …. Modeling and coaching students in order to move learning forward in groups. Finally teachers need to know how specific technology tools can add value to learning in small groups, and how to manage the use of technology by student groups. (Ashburn & Floden, eds. 2006, p. 23)

The CAD program has the ability to bring modern equipment and learner centered teaching methods to these kids, even if their regular school day features methods and machines not as up-to-date. Learning environments, such as CAD, that can accommodate multiple clusters of activity, including much self-directed and small-group activity, can lead to varied and successful learning outcomes (Wilson et al, 2008). Because CAD is devoted to encouraging tactful and verbal ways to resolve conflict, this space would also be ideal to teach these middle schoolers how to be civilized learners, especially when it comes to collaborative learning with technology. Honing classroom management skills and including supportive faculty guidance for curriculum materials would help in this area.

The impact of visual instruction within afterschool debate was a revelation to faculty who had witnessed CAD students struggling with sophisticated concepts central to national tournament topics year after year. Debate instruction traditionally centers upon development of public speaking and reading comprehension, which complement auditory and verbal learning styles. This was confirmed by researcher observations within the CAD learning environment and documented in Chapter 4. Educational activities led by CAD faculty were focused on reading comprehension of printed text, writing skills, and verbal communication delivery. One faculty member also commented during the last interview:

> *It (technology) interfaces with them at a level that I think for them, it's a change of pace from just the traditional way of line debate, which is a lot of times, the speaking component is something that we definitely are trying to help them get better at. (QT, May 2009)*

The published research findings to date suggest that debate is a subject that does not significantly use technology within instruction. The published literature around urban debate does seem to address some ills of the education system, such as social inequities, one-size-fits all teaching philosophies, and lack of critical information and media literacy instruction (Wade, 1998; Bellon, 2000; Hall, 2006). While statistics confirm the academic success of urban debaters—with participants' literacy test scores increasing by 25% and grade-point averages improving by 8 to 10% (Hoover, 2003; Collier, 2004), there is a lack of published research available that directly investigates the how, why, and what regarding educational factors and strategies that are directly responsible.

Hew and Brush (2007) discuss how "subject culture", institutionalized practices and expectations around subject content and pedagogy, can be a barrier to technology supported instruction if teachers do not understand or avoid technology applications toward the subject. CAD faculty may have unconsciously undervalued the impact of using technology within debate because they felt it would only be superfluous to the traditional debate instruction they provided. The student understanding and embrace of the Brownfield concept during the Google Earth activity proved to be just as eye-opening to the faculty. The positive impact of using visual instruction was also a signal to CAD faculty that using technology tools, such as Google Earth, to provide images of concepts or vocabulary terms is a way to reach all learners--mainstreamed special education students, ones who are "average", or gifted ones who know a lot about the topic at hand. This activity also signaled to CAD faculty that after-school debate instruction has to evolve too, or else risk only reaching those with interest and high aptitude for competitive debate verbal communication, or those with auditory and verbal learning preferences.

Technology supported teaching and learning with visual instruction can reach many more learners whose scholastic strengths and talents lie elsewhere.

This study contributed to curriculum development geared toward fully realizing benefits of using technology in the classroom and developing innovative instructional technology strategies to help kids learn.

Limitations of Study

The first limitation of this study was the transient behavior of the CAD students. At times, it was difficult to interview the students and collect completed artifacts on a consistent basis because of attendance issues. A second limitation of this study is considered the novelty effect—students tend to be more engaged and motivated to use a new piece of technology because it is new. Considering the quality and quantity of technology available to students in their school environment, this culturally informed technology intervention gave them access to exploratory, guided learning they do not have enough opportunities to experience. Further study is needed to investigate if motivation and engagement levels change over longer periods of time, with regular exposure to these technology activities. A third limitation could be argued because I worked with engaged, self-motivated faculty, which may have impacted their level of commitment, teaching, and ownership of this technology intervention. Implementing the curriculum with other faculty who were not as motivated may have different results. Assuming these three factors, I present this study with the understanding that my findings may not be widely applicable. However, the study limitations will not prevent readers, educators and instructional designers from asking new questions.

Study Implications & Suggestions for Future Research

The goal of my research is not to prove that this approach is better than others, or that all urban middle school debaters will react the same way to the intervention detailed in this document. By designing culturally informed technology activities and then observing the consequences in this community, I am trying to understand the issues, questions, and concerns that may surface among students and faculty. By sharing this information within academia and teaching practice, it could help educators and debate coaches make planning decisions for instruction. The study results contribute to academic discussion for technology literacy development in urban contexts, urban debate teaching strategies, and instructional design. This study is a qualitative inquiry devoted to examining barriers for urban students and finding ways to overcome these barriers in the form of a culturally informed technology intervention. The findings described here warrant further investigation of Internet search practices, online research development, and information literacy instruction of urban youth. Urban students' knowledge base about technology literacy is also a topic deserving of further inquiry. Additionally, debate instruction was enhanced for students and faculty alike during this research effort through the use of technology supported activities. Finally, this study is an example of real world instructional design within a complex learning environment. The instructional design activity occurred prior, during and following this technology intervention. The design process and research findings provide a guide to professionals who are interested in flexible procedures that take into account the culture of the learning environment while striving for quality educational experiences.

Future research opportunities related to this study include but are not limited to (1) extended investigations of regular technology supported instruction within urban debate and (2) examining debate faculty attitudes about teaching with technology. While these four technology activities proved somewhat successful, lessons learned from this experience could be used to refine them for future implementation. In addition, there were other debate applications identified that could be used to explore development of student technology literacy, such as composing ThinkWrites with word processing software, and teaching tournament Flowing (notetaking) on a laptop. A longitudinal investigation of students' experience and impact on their technology practices within debate and the traditional classroom would be rich areas for study.

Another potential area for study would be examining debate teachers' experience with using more technology in what has traditionally been a verbal and cognitive skill instruction arena. This dissertation study revealed thoughtful and unanticipated input from the debate faculty during this intervention. While these educators were all technologically literate themselves, they were new to teaching with technology for their debate activities. This occurrence is not unique to this context. Research supports that many K-12 teachers fall into this category because the majority of professional development activities are primarily focused on technology operations, and therefore teachers are lacking knowledge with technology-supported pedagogy (Hew & Brush, 2007). An investigation of CAD faculty development of technology supported instruction knowledge and skill base, and the influence on their teaching would be a significant contribution to education research. Faculty ownership of this intervention was a pivotal factor in the success of the debate technology activities. Future research pursuits can also look for evidence of *transformation of participation* (Rogoff, Matusov & White, 1996)—where learning is distributed between CAD faculty and students while they are directing and supporting shared goals.

Summary & Concluding Thoughts

This dissertation provides a portrayal of instructional design research and understanding of culturally informed technology use within urban middle school debate. The critical agenda proposed here is that technology supported learning activities tailored for an urban debate program can be a successful method for teaching technology literacy skills while supporting school curricula that may not be present or inadequate. At the beginning of this dissertation, I asked "Can technology activities within the context of urban debate influence development of technology literacy for this community?" The answer is *yes*, with further research deemed necessary to expand on the findings here. Urban public schools are the most viable environment for leveling the educational playing field. This study was intentionally situated with an urban school context—the CAD program—where a difference can be made. CAD seeks to promote public speaking and debate while enhancing Internet research skills, and this qualitative study asserts that the careful design and implementation of technology activities can positively direct CAD students towards these goals. The description of this intervention and research findings I hope will serve useful for others who are faced with similar, complex educational issues in similar instructional contexts.

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APPENDIXES

APPENDIX A:

National Educational Technology Standards for Students (NETS·S 2007)

1. Basic operations and concepts
- Students demonstrate a sound understanding of the nature and operation of technology systems
- Students are proficient in the use of technology

2. Social, ethical, and human issues
- Students understand the ethical, cultural, and societal issues related to technology
- Students practice responsible use of technology systems, information, and software
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity

3. Technology productivity tools
- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences

4. Technology research tools
- Students use technology to locate, evaluate, and collect information from a variety of sources
- Students use technology tools to process data and report results
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

5. Technology problem-solving and decision-making tools

- Students use technology resources for solving problems and making informed decisions
- Students employ technology in the development of strategies for solving problems in the real world.

APPENDIX B:

National Educational Technology Standards for Students (NETS·S 2007) Grade Profiles

Performance Indicators: All students should have opportunities to demonstrate the following performances.

Prior to completion of Grade 2 students will:

1. Use input devices (e.g., mouse, keyboard,remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes, and other technologies. (1)

2. Use a variety of media and technology resources for directed and independent learning activities. (1, 3)

3. Communicate about technology using developmentally appropriate and accurate terminology. (1)

4. Use developmentally appropriate multimedia resources (e.g., interactive books, educational software, elementary multimedia encyclopedias) to support learning. (1)

5. Work cooperatively and collaboratively with peers, family members,and others when using technology in the classroom. (2)

6. Demonstrate positive social and ethical behaviors when using technology. (2)

7. Practice responsible use of technology systems and software. (2)

8. Create developmentally appropriate multimedia products with support from teachers, family members, or student partners. (3)

9. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication,and illustration of thoughts, ideas, and stories. (3, 4, 5, 6)

10. Gather information and communicate with others using telecommunications, with support from teachers, family members, or

Prior to completion of Grade 5 students will:

1. Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. (1)

2. Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. (1, 2)

3. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. (2)

4. Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum. (3)

5. Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collarborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom. (3, 4)

6. Use telecommunications efficiently and effectively to access remote information, communicate with others in support of direct and independent learning, and peruse personal interests (4)

7. Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. (4, 5)

8. Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning, and extended learning activities. (5, 6)

9. Determine when technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. (5, 6)

10. Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources. (6)

Prior to completion of Grade 8 students will:

1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use (1)

2. Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society (2)

3. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse (2)

4. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research (3, 5)

5. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum (3.6)

6. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom (4, 5, 6)Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solutions or products for audiences inside and outside the classroom (4,5)

7. Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems (5, 6)

8. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving (1, 6)

9. Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems (2, 5, 6)

APPENDIX C:

Field Note Legend

Field Note Legend

	number	date	synopsis
	001	8-Sep-2008	September AUDL staff mtg
	002	12-Sep	AUDL student staff orientation @Emory
	003	10-Sep	GSU Debate Center
1	004	10-Nov	1st CAD session at Harper Archer
2	005	10-Nov	November AUDL staff mtg
3	006	13-Nov	CAD session canceled by HA admin
4	007	17-Nov	2nd CAD session at Harper Archer
5	008	20-Nov	Permission/consent form packets dropped off; CAD faculty present distressed @ this (timing)
6	009	24-Nov	Last CAD session at Harper Archer before Thanksgiving break
7	010	1-Dec	used Hip Hop celebrities to illustrate debate tournament format (order of speakers/rounds)
8	011	4-Dec	Last CAD session at Harper Archer before 1st tournament
9	012	8-Dec	1st CAD session at HA after tournament; lots of talking and peer censure about tournament behavior; 1st day of student interviews (1)
10	013	8-Dec	December AUDL staff mtg
11	014	10-Dec	Last CAD session at HA before XMAS break; had small party with cake; 2nd day of student interviews (1)

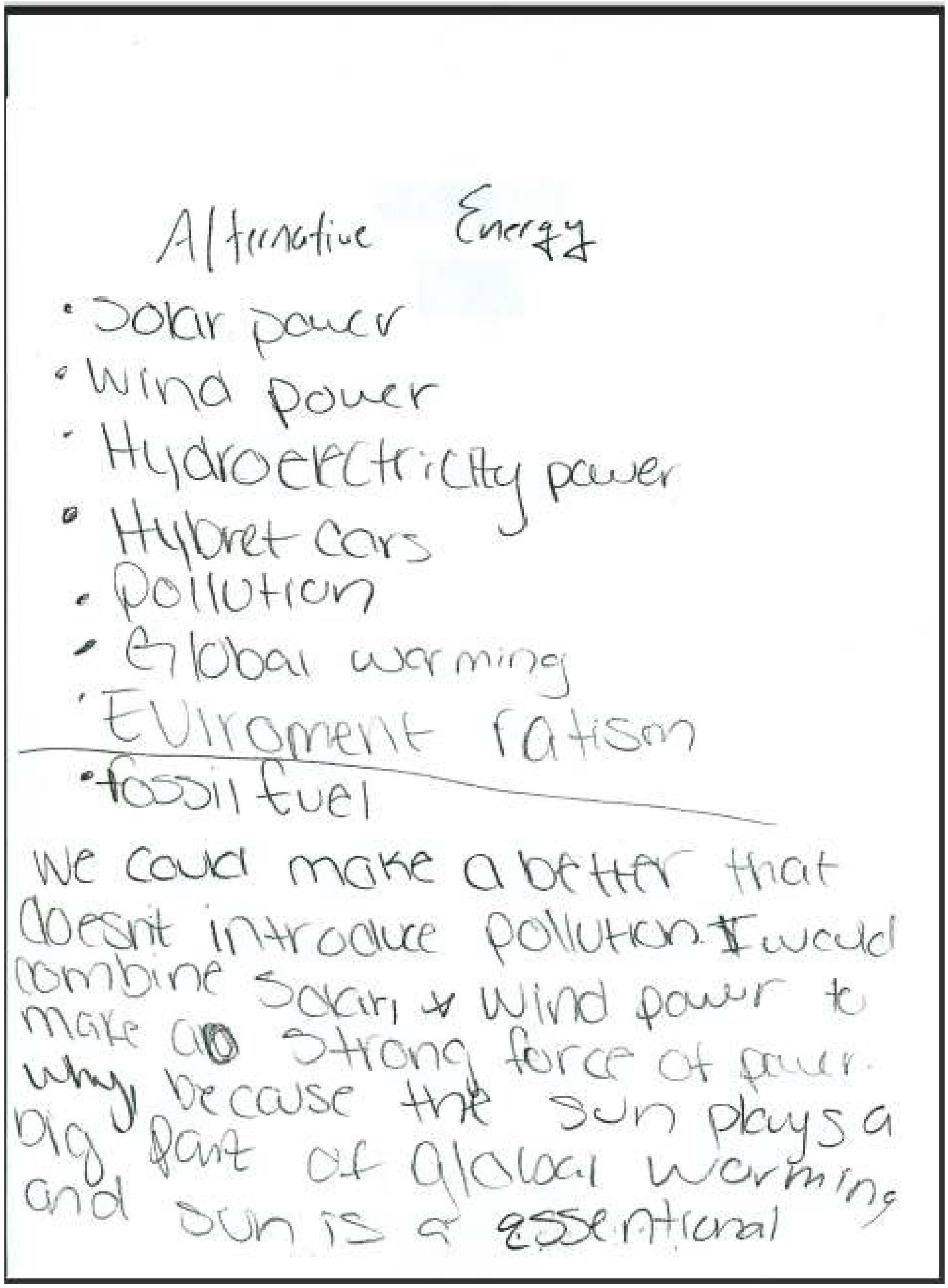
12	015	12-Jan-2009	first videotaped session; first session back after break (due to busing issues); talked about NY resolutions; enounciation exercise with CC
13	016	15-Jan	2nd videotaped session; students got folders for Sat debate; more evidence handouts
14	017	22-Jan	JR canceled CAD bc of Emory MS Debate Tourney obligations
15	018	26-Jan	3rd videotaped session; JR had "focus group" with students & explained judges' comments from 2nd tournament; I explained what I'd be doing this year and asked for more consent forms. * ran out of videotape!
16	019	29-Jan	4th videotaped session; did thinkwrite about technology in the classroom; debated for and against
17	020	2-Feb	
18	021	2-Feb	February AUDL Staff Meeting @ Emory
19	022	5-Feb	Newsletter interviews today; faculty member uses Blackberry to time mock rounds
20	023	9-Feb	re-connected with Pooh today (absent due to death in family); Thinkwrite about going to college or not?
21	024	12-Feb	Thinkwrite "What is your definition of Love?"; some students anxious about upcoming VDAY school dance
22	025	19-Feb	Took count of anticipated attendees for 2/21 tournament; talked with Ponch @ conflicts w/ math teacher
23	026	22-Feb	Tech training @ 1525--went very well!
24	027	23-Feb	N. Barnes did first GORT assessment with kids; discussed performance at Feb 21st tournament at Carver
25	028	26-Feb	3 female students absent due to detention; interviewed Ponch today

1	029	2-Mar	APS Snow Day-schools closed
2	030	5-Mar	I didn't attend (sick child)
3	031	9-Mar	Students completed post-tournament worksheet; QT did call-response exercise @ lifelessons
4	032	9-Mar	March AUDL Staff Meeting @ GSU
5	033	12-Mar	1st Tech Day: Online Vocab Search
6	034	16-Mar	DOJ visit @ Harper Archer; "create your own holiday" thinkwrite; had to leave early for GrITS Colloquium
7	035	19-Mar	2nd Tech Day: Google Earth Brownfield Tour (I could not attend bc of work)
8	036	23-Mar	all afterschool sessions cancelled due to attempted abduction that AM @ HA
9	037	26-Mar	I did not attend bc of work
10	038	30-Mar	AFAS cancelled--this caused some CAD confusion; students vented about past tournament judges/judging (not fair)
11	039	2-Apr	last mtg before APS Spring Break (April 6-10)--3rd Tech Day (PowerPoint activity)
12	040	6-Apr	April AUDL Staff meeting @ Emory
13	041	16-Apr	HA cancelled after-school programs for staff meeting
14	042	20-Apr	HA cancelled after-school programs for staff meeting
15	043	23-Apr	last session before Mock Trial event @ High Meadows (Roswell) 4/25
16	044	27-Apr	JR canceled CAD bc low staff commitment (plus he was stranded in Chicago airport)
17	045	30-Apr	4th Tech Day activity (Career Day search)

18	046	4-May	last planned day of CAD sessions (end of year party)

APPENDIX D:

Example of CAD Student Artifact



Alternative Energy

- Solar power
- Wind power
- Hydroelectricity power
- Hybret cars
- Pollution
- Global warming
- Eviroment ratism
- fossil fuel

We could make a better that doesnt introduce pollution. I would combine solar, & wind power to make a strong force of power. why because the sun plays a big part of global warming and sun is a essentional

APPENDIX E:

Video Log Example

Activity 1: Online Vocab Term Search VIDEO LOG

	EF Group Activity	TD Group Activity
1:10	EF prompts David & K to think about search terms related to alternative energy, without using the words alternative energy	
1:50		TD stresses importance of group being able to get good research skills during activity
2:20		TD has Ponch read instructions about brainstorming out loud to rest of group
2:48		TD further describes brainstorming for "key words" related to vocab search terms
2:58	EF introduces them to Safari Internet Browser for Mac	
2:59		TD emphasizes the website evaluation they have to do (authencity, validity, purpose)
3:45		TD asks Rico to distinguish between credible web information and valuable web information (and he does it well!)
4:10	2nd attempt to get them to brainstorm search terms (group is easily distracted)	
4:32		TD takes example from debate tournament with evidence being challenged--and how you have to do the same with Internet sources
4:53	EF asks them if they know what "sponsored results" are vs. other results	

APPENDIX F:

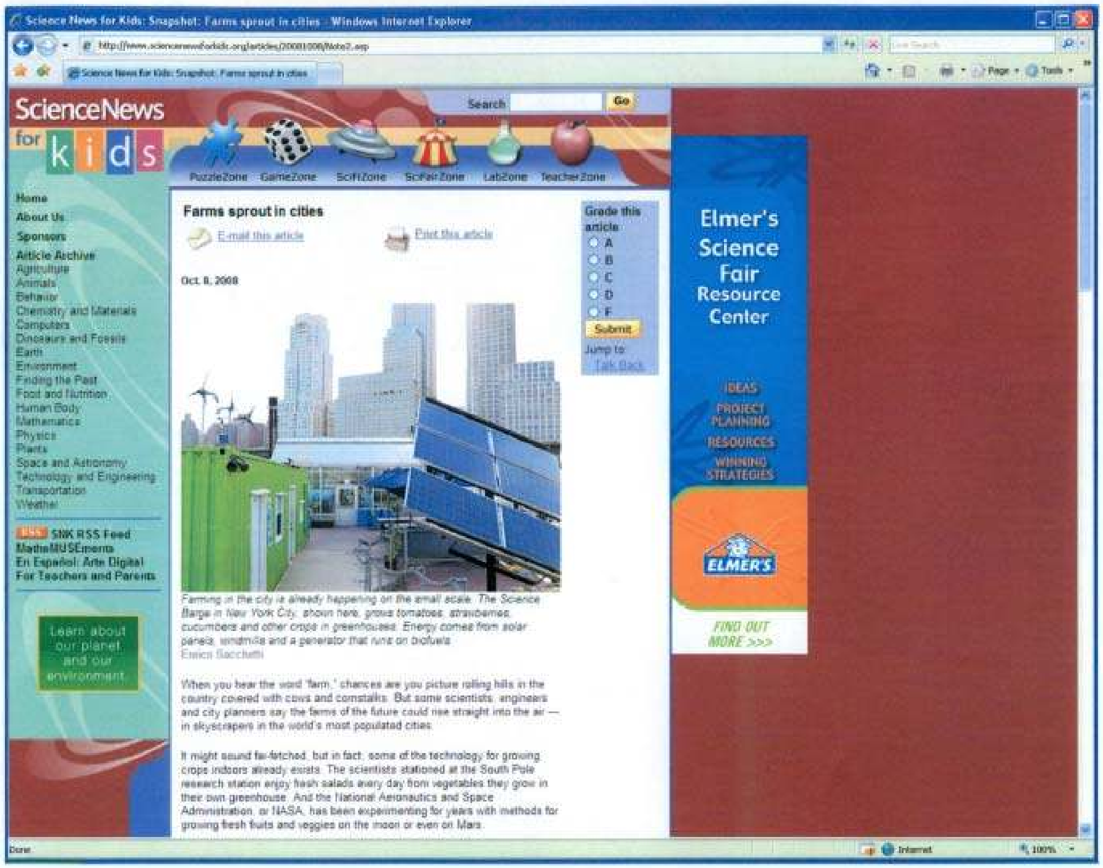
Research Log Example

tech_days_schedule_080810

DATE		ACTIVITY	RESEARCHER NOTES
Mon	5-Jan	talk with QT about Tech Day activities; **schedule interview 1 with EF, BO, RM;**	scheduled interview with EF; did not see RM (no CAD this week due to bus issues);
Thurs	8-Jan		inteviewed EF today
Mon	12-Jan		scheduled interview with BO for Mon 19 (by mistake--no session due to AFS holiday)
Thurs	15-Jan	last session before Jan 17 tournament	
Mon	19-Jan	MLK Holiday	
Thurs	22-Jan	~~schedule interview 3 with JR, AW~~	did not happen-but FI2 should happen after faculty training anyway--see note below; AUDL canceled IB session today.
		Jan 23-25: BFHS @ Big Private U.	
Mon	26-Jan	~~solicit feedback from CAD faculty using blog; schedule interview 2 with EF, BO, RM~~	need to make appeal for more student + guardian IRB forms at IB today
Thurs	29-Jan		
Mon	2-Feb	conduct student interview 2 (includes Tech Literacy)	staff mtg was Mon, announced no April tournament, last one March 28th; may have to merge S1 &2 for students with recent IRB consent ...student tech lit done 2/2; completed Interview 1 with TD and RM 2/5
Thurs	5-Feb		
Mon	9-Feb	~~training for HA CAD faculty (staff mtg?)~~ solicit feedback from CAD faculty using blog	the schedule has shifted a bit, due to the April tournament being canceled ...see changes; 2/9: did 3 student interview #2; 2/12: forgot interview guides--doh!!!
Thurs	12-Feb		
Mon	**16-Feb**	**Preidents' Day**	
Thurs	19-Feb	last session before Feb 21 tournament ... training for CAD staff sometime this week	took tech equipment inventory on 2/19; had staff train @ 1525 2/22, went well; ~~videotape training; have attendees fill out REF sheets~~. schedule Faculty Interview #2
Sun	22-Feb	staff training scheduled @ Big Private U.	

APPENDIX G:

Distributed Internet Materials for Student Technology Literacy Assessment



Science News for Kids: Snapshot: Farms sprout in cities - Windows Internet Explorer

ScienceNews for kids

Search Go

PuzzleZone GameZone SciFiZone SciFair Zone LabZone TeacherZone

Home
About Us
Sponsors
Article Archive
Agriculture
Animals
Behavior
Chemistry and Materials
Computers
Dinosaurs and Fossils
Earth
Environment
Finding the Past
Food and Nutrition
Human Body
Mathematics
Physics
Plants
Space and Astronomy
Technology and Engineering
Transportation
Weather

SNK RSS Feed
MathMUSEments
En Español: Arte Digital
For Teachers and Parents

Learn about our planet and our environment

Farms sprout in cities

E-mail this article — Print this article

Grade this article: A B C D F — Submit — Jump to: Talk Back

Oct. 8, 2008

Farming in the city is already happening on the small scale. The Science Barge in New York City, shown here, grows tomatoes, strawberries, cucumbers and other crops in greenhouses. Energy comes from solar panels, windmills and a generator that runs on biofuels.
Enrico Sacchetti

When you hear the word "farm," chances are you picture rolling hills in the country covered with cows and cornstalks. But some scientists, engineers and city planners say the farms of the future could rise straight into the air — in skyscrapers in the world's most populated cities.

It might sound far-fetched, but in fact, some of the technology for growing crops indoors already exists. The scientists stationed at the South Pole research station enjoy fresh salads every day from vegetables they grow in their own greenhouse. And the National Aeronautics and Space Administration, or NASA, has been experimenting for years with methods for growing fresh fruits and veggies on the moon or even on Mars.

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APPENDIX H:

Listserv Correspondence to Faculty (Example)

CAD tech activities-request for feedback

Dana Bryant

Sent: Wednesday, February 04, 2009 2:23 PM

To: AtlantaUDL@googlegroups.com

Hello all:

Below is a summary of technology activities we are planning to pilot at [redacted] in Mar/Apr. I would really appreciate if you would review the activities and provide feedback in regards to relevancy, classroom management, etc. Many of you have been working with CAD for a couple years now, and your experience and input would be invaluable to me ... the ultimate goal is to introduce technology activities for the students that enhance CAD, while promoting some tech literacy skills.

As I mentioned at Monday's meeting, if you are interested in doing any of these activities with your students, you are welcome to. Keep in mind, these are developed with regard to [redacted]; your group may have different needs, abilities and resources—so adjust where necessary. If you want any assistance with modifying the activities per your teaching environment, I am happy to help.

I am planning some brief staff training on facilitating the activities later this month—time and date will be announced later. In the meantime, whether you plan to attend training or use the items below or not—**I would really appreciate any feedback you have to give by Tues, Feb 10th.**

Thanks-

Dana

dbryant@student.gsu.edu

Overall structure of technology activities:

The kids will work in groups of 3-4, with 1 CAD faculty supervising each group. Each group will rotate at the computer stations in the back of the classroom. If a group is not at the computer station, they will plan how they will use their time, and who will do what once at the computer. If a group has left the computer station, they will discuss their findings and organize their thoughts for the eventual presentation. Each activity is estimated to take 1 hour, based on computer availability and CAD staffing for that day. *NOTE: we also may look into reserving school computer lab space, but these plans are based on that not being an option*

(1) Vocab Example Search:

Based on the Debate Topic Terms handout, kids will search online for real-world examples that best exemplify the vocabulary term. The handout/list will be split among the groups. At the end of the activity, all groups will present their best real-world examples and justify to the rest of students. There may some debate as to whether the examples are worthy or not, with regard to this year's topic.

(2) Google Earth:

Kids will use Google Earth to locate different "brownfields" around the world (list of brownfields to be supplied at beginning). The handout/list will be split among the groups. Each group will have to locate a picture of the area, find out origin/history of the area, current population and use, and any proposed development plans. The groups will share their findings with everyone at the end for discussion and debate. At some point, the findings will be bound/published as a "Brownfield Book"

(3) Atlanta Brownfield PowerPoint:

Based on info collected in previous activities (Thinkwrites, current event discussions, etc), each group will compose a PowerPoint presentation intended for Mayor Shirley Franklin about developing the closed GM plants in the ATL area. The presentation will include text, graphics, sources, etc. The computer time will be utilized for compiling and arranging content, as the research and work has been done prior. Each group will present using their PowerPoint on an LCD projector.

(4) Debate Topic Career Day:

Kids will brainstorm with help of CAD faculty about people who work directly with alternative energy/environmental policy (for example, lawyers, geologists, engineers, activists, scientists). Kids will do an online search to find one real person associated with each career; identify what he/she does on a daily basis; what education/experience is necessary; average salary; and what inspires person to do what they do. *NOTE: This may be more of an indvidual activity, with each student assigned 1 or 2 careers*

APPENDIX I:

Technology Activity LESSON PLANS

CAD Technology Activity 1 updated March 11, 2009

Name of Activity: Online Vocab Search

Overview of Activity:

Based on the *Important Terms* handout for debate, kids will search online for real-world examples that best exemplify the vocabulary term. The handout/list will be split among the groups. At the end of the activity, all groups will present their best real-world examples and justify to the rest of students. Students and staff should engage in debate as to whether the examples are worthy or not, with regard to this year's topic.

The kids should work in groups of 3-4, with 1 CAD faculty working with each group. Each group should have access to a classroom desktop computer (if available) or laptop. Faculty may bring in personal laptops but should closely monitor students' use. This activity is estimated to take 1 hour, based on computer availability and CAD staffing for that day.

Try to monitor time as follows:

- 5-10 minutes—brainstorming key search terms
- 15-20 minutes—searching and recording results
- 5-10 minutes—strategizing for oral presentation
- 10-20 minutes—all groups present findings

NETS for Students Standards to be Addressed:

3. Research and Information Fluency
4. Critical Thinking, Problem Solving and Decision Making
5. Digital Citizenship

*see NETS handout or visit http://www.iste.org/AM/Template.cfm?Section=NETS for more info

Key Goals	• Want students to actively brainstorm and organize the key terms to use for the vocab search • Want students to evaluate search results/web content for credibility, bias, and "freshness" (how current is the information?) • Want students to understand how to identify organizations/individuals responsible for website using the

1

	URL *See "Information Seeking Strategies" handout for more info
Materials	• Desktop or Laptop Computer (one per group) • Pen and paper (for student notetaking) • Flash/Jump Drive to save any digital work
Relevancy to Debate	• Enhances research skills • Builds familiarity with evidence vocabulary and content • Enhances verbal communication and critical thinking skills

Helpful hints:

Check in with kids during their search time. Encourage collaborative learning; those who are having trouble could benefit from those who are not.

Encourage kids having a hard time with their search terms to revise them. Emphasize that it a learning process, and everyone has trouble from time to time.

Emphasize that all information online is not necessarily true or factual. It is just like deciding what TV show to watch, book to read, orclothes/groceries to buy. There are things you have to evaluate based on what you want before you make a decision to do/use any of the things above (time and content of TV show; topic and length of book; price, size, color of clothes, etc). Same goes for evaluating things online—and you should try to understand the intent of person/organization providing web content.

Do not tolerate kids wasting computer time (searching/looking for something else; playing MP3's and games, etc.) during the activity. If they have completed the lesson and there is time left over, use your discretion and best judgement about them using the computer for personal reasons.

Name of Activity: Google Earth Brownfield Tour

Overview of Activity:

Kids will use Google Earth to locate different "brownfields" across the world. Each group will have to locate a picture of their assigned area, and locate any past images using the *historical imagery* feature of Google Earth. Groups will also be asked to identify the largest city near the brownfield. Kids will be provided supplemental information on any proposed development plans. The groups will share their findings (what they saw + a summary of the supplemental information) with everyone at the end for discussion.

Also reserve time after the 1 brownfield search for kids to each locate 1 area of personal interest (home, relative's house, school, White House, etc). *NOTE: the original CAD questionnaire asked "if you could travel anywhere, where would you go" -- so you may want to remind kids about this favorite location if they are lost.* Discuss the ethical and privacy implications of the Google Earth technology.

The kids should work in groups of 3-4, with 1 CAD faculty working with each group. Each group should have access to a classroom desktop computer (if available) or laptop. Faculty may bring in personal laptops but should closely monitor students' use. This activity is estimated to take 1 hour, based on computer availability and CAD staffing for that day.

Try to monitor time as follows:

- 5-10 minutes—brainstorming key search terms
- 15-20 minutes—searching and recording results
- 5-10 minutes—strategizing for oral presentation
- 10-20 minutes—all groups present findings

NETS for Students Standards to be Addressed:

3. Research and Information Fluency
4. Critical Thinking, Problem Solving and Decision Making
6. Technology Operations and Concepts

*see NETS handout or visit http://www.iste.org/AM/Template.cfm?Section=NETS for more info

Key Goals	• Introduce students to visual imagery for Brownfields (which for some has been an abstract concept) • Assist students in grasping information within maps and

	satellite imagery systems. • Encourage students to consider the benefits, consequences, and disadvantages of technology *See "Google Earth in the Classroom" handout or visit: http://www.google.com/educators/start_earth.html for more info
Materials	• Desktop or Laptop Computer (one per group) • Google Earth application (free download from www.google.com) • Pen and paper (for student notetaking) • Flash/Jump Drive to save any digital work
Relevancy to Debate	• Builds familiarity with evidence content • Enhances verbal communication and critical thinking skills

Helpful Hints:

Visual content is a very powerful teaching tool, so kids will probably want to "play" with this application. That's OK, the research requested is limited for that very reason. The main objective is to introduce kids to a new technology, or if they are familiar with Google Earth, then use the application to reinforce the brownfield concept--which some are still struggling with. Make sure they devote the majority of time to finding images of the assigned brownfield though.

If you are not overly familiar with Google Earth--that's OK too. However, acknowledge to kids that you may be learning with them. Because there are so many functions, repeated use of the application would help with skill building...brainstorm with kids about other classes/subjects that could use Google Earth during school time.

Do not tolerate kids wasting computer time (searching/looking for something else; playing MP3's and games, etc.) during the activity. If they have completed the lesson and there is time left over, use your discretion and best judgement about them using the computer for personal reasons.

Google Earth *in the Classroom*

Created by WestEd for Google

Get the tool: http://earth.google.com

Google Earth

What is it?

Google Earth is a free, downloadable application that works as a browser for all sorts of information on Earth. It uses satellite imagery to grab, spin, pan, tilt and zoom down to any place on Earth. Students can explore every corner of the globe, measure distances, create their own virtual tours, and share their tours with others. You can also create and download layers of information and view them in geographic context.

Why use it?

Students can use Google Earth to:

- study natural and political maps
- learn map reading and navigation
- visually explore historical, news, and census data
- annotate locations and share with others
- create their own 3D models to overlay on maps
- download geographically-referenced information created by others

Instructional Ideas

Elementary. Have students explore verified locations where meteors have hit the Earth (http://www.gearthblog.com/kmfiles/impacts.kmz), then create a chart of the number of craters per continent.

Middle School. Have students explore the 19 annotated placemarks mentioned in Jules Verne's "Around the World in 80 Days" (http://bbs.keyhole.com/ubb/download.php?Number=156427). Then have them annotate 19 different places they would stop if they were traveling around the world.

High School. Have students pretend they are with Sir Ernest Shackelton during his adventure in Antarctica. Explore the virtual tour in Google Earth (http://bbs.keyhole.com/ubb/download.php?Number=151193) and have students write diary entries to personalize the experience. mapping, the iterative design process, and user feedback.

Expert Tip

To help you know what is possible with Google Earth, download and explore lots of virtual tours (KML and KMZ files) before creating your own tours.

Name of Activity:	Bullying PowerPoint

Overview of Activity:

Based on online research sources and information from the 2009 mock trial evidence packet, each group will compose PowerPoint slides about topics related to bullying. The topics (one per group) are listed below:

- Description/definition of bullying—include info about different types: physical, verbal, relational, cyber
- Description of different roles within bullying—include characteristics of each role: victim, bully, bystander, mediator
- Coping strategies for victims
- Recommendations to eradicate bullying

The slides will include text, graphics, sources, etc. A template for preferred slide layout will be provided. The computer time will be utilized for researching, composing and arranging content, and reliable websites for source content will also be provided. Each group will present using their PowerPoint slides/topic on an LCD projector. All of the slides will be combined for one presentation about bullying that students may add to their evidence packet for mock trial.

The kids should work in groups of 3-4, with 1 CAD faculty working with each group. Each group should have access to a classroom desktop computer (if available) or laptop. Faculty may bring in personal laptops but should closely monitor students' use. This activity is estimated to take 1-1.25 hours, based on computer availability and CAD staffing for that day.

Try to monitor time as follows:

- 15-20 minutes—finding sources and selecting content
- 5-10 minutes—finding and selecting graphics
- 15-20 minutes—creating PowerPoint slides
- 15-20 minutes—all groups present findings

NETS for Students Standards to be Addressed: 1. Creativity and Innovation 2. Communication and Collaboration 5. Critical Thinking, Problem solving, and Decision Making 6. Technology Operations and Concepts *see NETS handout or visit http://www.iste.org/AM/Template.cfm?Section=NETS for more info	
Key Teaching Goals	▪ Assist students toward making connections (or not) between the online sources and what is included in the mock trial evidence packet. ▪ Encourage students to consider what information to include (and how to include it) for visual aids that reinforce an oral presentation. ▪ Discuss with students how to incorporate graphics into their slides that support the text/copy, and remind them about copyright issues (citing the graphic) *See "Visual Images: Teaching, Learning & Communicating" handout for more info
Materials	▪ Desktop or Laptop Computer with Internet access and Microsoft PowerPoint (one per group) ▪ Pen and paper (for student notetaking) ▪ LCD projector for visual aids during oral presentation ▪ Flash/Jump Drive to save any digital work
Relevancy to Debate	▪ Builds familiarity with evidence content ▪ Enhances verbal communication and critical thinking skills

Helpful Hints:

Check in with kids while they find and review the online sources provided. Encourage collaborative learning; those who are having trouble could benefit from those who are not.

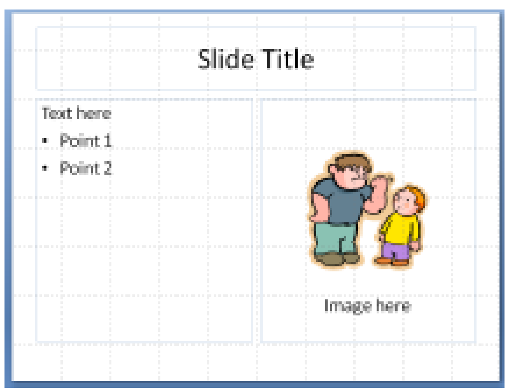
Make sure kids are consulting the evidence packet along with the online sources. Encourage them to highlight key phrases/terms from the evidence packet. Also encourage them to use vocabulary terms (where applicable) in their PowerPoint slides.

Direct kids to compose text for slides first—then search/identify graphics for the slides. It is very easy to spend most of the time looking for graphics, so make sure the copy for each slide is composed first.

When composing copy for the slides, remind kids that the text should support what they say… meaning it should be brief and to the point. They should not include paragraphs on the slides, but can use lengthy passages/paragraphs for personal notes.

Do not tolerate kids wasting computer time (searching/looking for something else; playing MP3's and games, etc.) during the activity. If they have completed the lesson and there is time leftover, use your discretion and best judgement about them using the computer for personal reasons.

Preferred Slide Layout for this activity:



Online Sources for CAD Bullying PowerPoint Activity

Personal stories about being a bully, and coping with bullies:

http://www.abouthealth.com/t_topicX.htm?topic=28

Definition of bully & victim; Coping strategies:

http://www.nationalsave.org/main/bully.php

Cyberbullying:

http://www.post-gazette.com/pg/08081/866710-51.stm

Coping Strategies:

http://www.antibullying.net/yproryadvice.htm

This online tutorial contains info about all of the topics in today's activity:

The ABC's of Bullying: Addressing, Blocking & Curbing School Aggression (Module 1-7)

http://pathwayscourses.samhsa.gov/bully/bully_intro_pg1.htm

Children who witness bullying (Module 2)

http://pathwayscourses.samhsa.gov/bully/bully_2_pg12.htm

Relational bullying (Module 2)
http://pathwayscourses.samhsa.gov/bully/bully_2_pg14.htm

Characteristics of Bullies & Victims:

http://www.safeyouth.org/scripts/faq/bullying.asp

Name of Activity: Online Career Day	
Overview of Activity: Based on the *Mock Trial* characters, kids will search online for information about each career. Each student will pick one career they want to learn about, and do an online search to find one real person working in that field; identify what he/she does on a daily basis; what education/experience is necessary; average salary; and what inspires person to do what they do. *NOTE: If a student has another career path they are interested in, they can do that one instead of mock trial characters (lawyer, school social worker, police officer, psychologist) At the end of the activity, all students will present a career path and explain the education, work experience, qualites desired, and share the "real person" example they found. Students and staff should discuss whether the information found about the career was what they expected (based on their mock trial experience and online research)—and whether they would consider this career for themselves. The kids should work in groups of 3-4, with 1 CAD faculty working with each group. Each group should have access to a classroom desktop computer (if available) or laptop. Faculty may bring in personal laptops but should closely monitor students' use. This activity is estimated to take 60-90 minutes, based on computer availability and CAD staffing for that day. Try to monitor time as follows: • 50-60 minutes—searching and recording results (each student having no more than 15 minutes of individual search time) • 5-10 minutes—strategizing for oral presentation (students who have found their info should be working on this part while others are searching) • 20-30 minutes—all students present findings	
NETS for Students Standards to be Addressed: 3. Research and Information Fluency 4. Critical Thinking, Problem Solving and Decision Making 5. Digital Citizenship *see NETS handout or visit http://www.iste.org/AM/Template.cfm?Section=NETS for more info	
Key Teaching Goals	• Encourage students to actively brainstorm and organize

	the key terms to use for the information search • Request students evaluate search results/web content for credibility, bias, and "fresh vs. stale" (how current is the information?) • Discuss with students how to identify organizations/individuals responsible for website using the URL *See "Information Seeking Strategies" handout for more info
Materials	• Desktop or Laptop Computer (one per group) • Pen and paper (for student notetaking) • Flash/Jump Drive to save any digital work
Relevancy to Debate	• Enhances research skills • Builds familiarity with mock trial content • Encourages "thinking ahead" to personal future goals • Enhances verbal communication and critical thinking skills

Helpful Hints:

Check in with kids during their search time. Encourage collaborative learning; those who are having trouble could benefit from those who are not.

Encourage kids having a hard time with their search terms to revise them. Emphasize that it's a learning process, and everyone has trouble from time to time.

Emphasize that all information online is not necessarily true or factual—or what you need for the immediate task. It is just like deciding what TV show to watch, book to read, orclothes/groceries to buy. There are things you have to evaluate based on what you want before you make a decision to do/use any of the things above (time and content of TV show; topic and length of book; price, size, color of clothes, etc). Same goes for evaluating things online—and you should try to understand the intent of person/organization providing web content.

Do not tolerate kids wasting computer time (searching/looking for something else; playing MP3's and games, etc.) during the activity. If they have completed the lesson and there is time left over, use your discretion and best judgement about them using the computer for personal reasons.

APPENDIX J:

Technology Activity STUDENT WORKSHEET (example)

Name of Activity:	Online Vocab Search

NAME______________________________

GROUP______________________________

WORDS TO RESEARCH: What do you think each means as it relates to your debate topic?

1.Word________________ Related Search terms/phrases_______________________

____

Your meaning:____

____

Researched meaning as it relates to topic:

____

____

Is content credible? (biased/current?)

____

____

2. Word________________ Related Search terms/phrases_______________________

____

Your meaning:____

____

Researched meaning as it relates to topic:

____

____

Is content credible? (biased/current?)

____

____

3. Word________________ Related Search terms/phrases _______________________

____

Your meaning:____

____

Researched meaning as it relates to topic:

____

____

4. Word_______________ Related Search terms/phrases ____________________

____

Your meaning:____

____

Researched meaning as it relates to topic:

____

____

Is content credible? (biased/current?)

____

____

5. Word_______________ Related Search terms/phrases ____________________

____

Your meaning: ____

____

Researched meaning as it relates to debate topic:

____

____

Is content credible? (biased/current?)

____

____

6. Word_______________ Related Search terms/phrases ____________________

____

Your meaning:____

____

Researched meaning as it relates to debate topic:

____

____

Is content credible? (biased/current?)

____

____

7. Word________________ Related Search terms/phrases ______________________

____

Your meaning:____

____

Researched meaning as it relates to debate topic:

____

____

Is content credible? (biased/current?)

____

____