THE TECHNOLOGICAL TEACHER: HOW EDUCATIONAL TECHNOLOGY IS CHANGING THE ROLE OF TEACHERS IN THE HIGH SCHOOL CLASSROOM

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the degree of
Master of Arts
in Communication, Culture and Technology

By

Shane Anthony Hoon, B.A.

Washington, DC
April 29, 2008
THE TECHNOLOGICAL TEACHER: HOW EDUCATIONAL TECHNOLOGY IS CHANGING THE ROLE OF TEACHERS IN THE HIGH SCHOOL CLASSROOM

Shane Anthony Hoon, B.A.

Thesis Advisor: Dr. Diana Owen PhD

ABSTRACT

We live in a world that is rapidly evolving through technology. This evolution has led to a changing cultural ideology and how we function day to day. The influences of technology have become ubiquitous in almost every aspect of our current society, including in our educational systems. As expectations have risen within our classrooms, for both students as well as teachers, we are seeing more and more educational technology being implemented into academia and at all levels.

The objective of this thesis is to critically investigate this technological shift in education and to understand what effects it is having on student learning, but more importantly, teaching practices. The overarching questions that this thesis examines are: How has the role of the teacher/educator changed as a result of new educational technology? What are some factors influencing teachers’ use of technology in the classroom? Finally, how do teachers generally feel about educational technology?

While initial research has offered a mixed bag of perspectives and attitudes, the initial hypothesis for this project was that the teacher has become more of a facilitator of technology and that some of the art of teaching had been lost. The purpose of this study was to investigate this change from the perspective of the teacher in order to better understand the benefits and potential consequences of educational technology.

The implementation of educational technology has been seen to have presented numerous benefits for many within the education system. However, what these technologies have also presented various challenges and unintended consequences. Some of those challenges being accessibility, cost effectiveness, lack of support and technological know-how, credibility of resources, and reliability of software and hardware to name a few. It has also been recognized that the pressure on teachers to implement technology in the classroom has been heavily influenced by society, the administration and institution itself, and even through professional pressures from colleagues in the field as well as simply trying to stay up-to-date in order to remain effective. What this has meant for teachers and students within the classroom is a shift in the approach to learning.
In order to better define the boundaries and limitations of this project, only the state of Minnesota was studied. Additionally, research data was collected from current high school social studies and history teachers and educators as well as other professionals within the field from the state of Minnesota. Primary fieldwork for this study was collected through a teacher survey, personal interviews, and classroom observations.

The results of the fieldwork demonstrated a greater overall enthusiasm for educational technology than anticipated. Nevertheless, teachers still expressed concern over what technologies are being introduced, the degree to which they are incorporated, and the practicality of these resources. Technology may be enhancing the learning experience of discovering information in new and creative ways, but it may also be unintentionally marginalizing our education system standards and the quality of our teachers. Educational technology is a double-edged sword. We must be careful with how we use it.
Acknowledgements and thanks:

There have been a lot of people that have helped me along the way and to get to this point and I would like to take this opportunity to personally thank them. Although I know I’m going to forget someone in the process I still want to give credit to those I can.

First and foremost I want to thank my advisor Dr. Diana Owen. I really can’t put into words what an amazing mentor and advisor she has been throughout this experience. Going above and beyond what I could ever imagine any one else doing and all because of her dedication to her students. She’s been an incredible professor and friend throughout my time here at CCT, whether talking about my thesis, basketball, my numerous injuries, her adventures with Jeffrey or whatever the day has brought about. I can’t put into words how incredibly grateful I am for everything she has done for me. For everything you have taught me and for all of the guidance and wisdom you’ve shared, I sincerely thank you.

I’d also like to give special thanks to Dr. Michael Coventry, who has guided me throughout my time in CCT. Dr. Coventry has shown me new ways to look at things and has made my overall graduate experience intellectually stimulating as well as fun.

Of course I want to thank my parents for all they’ve done for me over the years and for always being there for me to challenge and motivating me. You’ve both been tremendously supportive with any decision that I have made and have always encouraged me to pursue my dreams. Thank you also to the rest of my family and friends, especially Jaid for your support and friendship throughout the years. You’ve always believed in me and stood by me and I have always appreciated it. You truly are my brother.

Thank you to all the teachers and administrators back in Minnesota that participated in the project. Your contributions truly did make this project the success it is. A special thanks to my teacher friends Jen, Chris and Ryan. All are wonderful teachers and even more importantly, great people and friends. I truly admire each of you for what you do.

To Cary – with whom I shared not only many experiences with both in the classroom
as well as outside of it, but also for being the most amazing friend to me over the last two years. You really are my other Pip.

To Jess and Ruchi, for the food, the jokes, the late nights, the insights and help, and also keeping me sane at times when I wasn’t. You helped me to enjoy this process and even more importantly, laugh when I needed it. Thanks for everything!

And to that special someone in my life, you know who you are. You make me look forward to the future with inspiration, hope and excitement. I’m very lucky to have you in my life. Kia Kaha!

Finally, to all of the friends that I’ve made and shared so many great memories here in CCT and the larger Georgetown community. I can’t possibly list everyone, but you know who you are and I’m sincerely grateful for what you’ve meant to me. It’s been an amazing experience!
TABLE OF CONTENTS

Introduction: “Welcome to Class” ................................................................. 1

Chapter 1. Literature Review and Research: “Study Hall” .................. 12
“Before the Bell” - The Facts about Technology/Media Use Away
From the Classroom .................................................................................. 15
“Attention Class, The Lesson is About to Begin” - The Classroom
Environment and Culture ......................................................................... 17
“I Have a Question?” - The Role of the Teacher ......................... 31
  Teaching Philosophies: ................................................................. 31
  Learning How to Teach: .............................................................. 33
  The Teacher’s Changing Role: .................................................. 34
  Teacher Uses of Technology - .................................................. 36
  Obstacles and Challenges - ....................................................... 38
  The Conclusion - ........................................................................... 41
“Homework” - Review and Future Directions ......................... 42

Chapter 2. Pressures and Challenges: “In Class Work and Discussion” .... 45
Institutional Pressures – ................................................................. 49
  Minnesota’s Institutional Guidelines and Plan for Technology~ 55
  The Administration~ ................................................................. 60
  Parental Pressure~ ................................................................. 70
  Corporate Pressure~ ................................................................. 72
  Professional Pressures - .......................................................... 75
  Other Challenges and Concerns - ........................................ 77

Chapter 3. Critique, Theory and Analysis: “Making the Grade” ........ 82
Chapter 4. Methodology: “How to Get from A to Z” ........................................... 95
  Why Minnesota - .......................................................... 96
  Why social studies/history - ........................................... 101
  The Lesson Plan - .......................................................... 102
  The Survey - .................................................................... 103
    Design: ........................................................................ 103
    Sample: ........................................................................ 105
    Distribution and Response- ............................................ 108
    Operations: .................................................................... 109
  The Classroom - ............................................................ 109
  In-Depth Interviews - ....................................................... 111
    The Teachers/Educators: .............................................. 111
    The Administration: ...................................................... 112
  “My dog ate it!” – The Missing Links: ................................ 114

Chapter 5. Data Analysis: “Statistics” .................................................. 116
  Class Observations - ........................................................ 117
  Data Analysis and Interview Findings - ...................... 126
    Standardized Requirements: ........................................ 127
    Classroom Implementation: ........................................... 131
    Challenges and Concerns: ............................................. 136
    Displacement: ............................................................... 144
    Teacher Attitudes/Impressions (Benefits and Drawbacks): ... 149
  Data Analysis Conclusions - ............................................ 156

Chapter 6. Conclusion........................................................................... 161
  “Lesson Review”: Summary of Findings - ......................... 161
  “Homework”: What’s Next ............................................. 165
  “After the Bell”: Concluding Remarks ............................. 170

Appendix A: Educational Technology Survey (ETS) ......................... 174
Appendix B: Interview Questions for Teachers ............................. 187
Appendix C: Interview Questions for Administration ................. 189
Appendix D: Interview Questions for the Minnesota Department of Education 191
Works Cited: ........................................................................................................... 193
Interviews Cited: ..................................................................................................... 198
Works Referenced: .................................................................................................. 199
Introduction: “Welcome to Class”

Few would argue the importance of our educational system and its role in developing the youth of this country. Education is a critical part of our social structure and while this field, like most others, is constantly changing, the fundamentals of education have persevered.

Nonetheless, throughout the past century we have witnessed a cultural evolution as technology has revolutionized most industries as well as our everyday lives. What has been often left behind are the critical understandings of such progressions as we as a society have enveloped an attitude of technological reliance. While the field of education has begun to incorporate this new mentality of technological implementation, there are strong connections to the traditional basics and methods that have proved successful. What is shifting, however, are our attitudes towards educations as being systematic and correlational to human development and success outside of the established framework. This social attitude often regards technology as an idealistic glimpse of future possibilities, yet still maintains a somewhat reluctant willingness to completely adopt technological dependence. Although some forms of media and technology are regarded as negative due to their tendency to dehumanize individuals from the social world, the simple placement of ‘educational’ as a prefix of this term creates a sense of comfort and acceptance for many. This attitude could be argued as being generational, or perhaps we
are seeing the evolution of education and teaching. In either case, our endless reliance of these tools has supplanted their secondary role and has anointed them as primary sources of educational material.

For sometime I have been interested in the role of education in our society, as its role in the greater promotion and production of social values is often underappreciated and under-investigated. Many have championed the implementation of new educational technology in the classroom, while there have been others who have criticized this transition. My personal motivations for this topic originate from my experiences as both a teacher and student, as well as from my appreciation for great teaching and creative methods. Having grown up in a family where both parents were educators, I quickly found myself engaged with not only the classroom culture but also the school system’s political drama. I continued, however, to feel drawn towards education, having been actively assisting my parents through the years before pursuing teaching and coaching positions of my own. Nevertheless, as someone who received a traditional form of education that emphasized personal, face-to-face contact with my educators, I found myself questioning the reliance we have placed on these new educational technologies. I also questioned their longitudinal effects and the unintended consequences that may surface from extensive technological implementation and related new forms of evaluating aptitude and success.
Preliminary research revealed that I am not alone in this sentiment, as many former and current educators have voiced concerns about this technological transition. Whether the focus be economically based, content based, or even cognitively based in terms of concerns about parasocial/prosocial development, there is an intriguing debate over the influence of these technologies in such a society that is already inundated with media. Is the adoption of more technology in our educational systems necessary, and more importantly, beneficial? What is being displaced through this implementation? Is true implementation standardized across schools? Districts? States? These are some of the questions and concerns that I have discussed and investigated throughout my own education and professional career.

Recent studies have looked at the correlational and causal influences of educational media on students’ performances in the classroom. Current criticisms suggest that some educational content creates a sort of social gap among children, yet I would argue that the same can be said for schools that perhaps cannot afford such tools and technologies when compared with those that have the funds and resources readily available.

There is a demonstrated assumption that all educational technologies are beneficial in the classroom. While it can be argued that these technologies may aid in student development and transmission of information, my hypothesis is that issues of misuse and displacement arise as the art of teaching is being replace with computer
programs and educational media. The role of the teacher is becoming one more of a mediator for new technologies. The uses of educational technologies may be effective in the right context and under the right control; it is not only problematic, but irresponsible to assume that all educational technologies are successful and that they can be substitutes for teachers in traditional education systems. While I believe that most educators will respond favorably in acknowledging that new technologies have assisted in their everyday teaching practices, both in preparation and in presentation, I do foresee there being concern as to the progression of this trend and potential fears of being left behind and outdated. As we continue to try and keep up with advancing technology, the movement of this trend in education has noticeably changed the environment of higher education and we are seeing those changes seep down into our high school and elementary school systems as well.

It has been emphasized that there needs to be greater awareness of children’s’ media in the larger society. Hopefully this project will motivate further attention towards and critique of the educational media currently used inside of the classroom. As previous studies have indicated, there is already a social push towards regulating children’s media as well as developing further media literacy among children. While teachers and educators should not necessarily be held solely liable for such a responsibility, there is some rational for developing media literacy and an appreciation for these technologies (uses and applications) in a controlled, educational environment such as a classroom.
Presumably, to better appease all those interested and who advocate for more educational technology in schools, why not designate learning how to use and apply new technologies as a new elective subject, independent from others? This would potentially create new teaching positions for educators who are specialized in teaching with technology. It could also alleviate the pressures that exist on current educators to incorporate these tools into their classrooms, which arguably has modified their individual teaching styles and practices.

Current high school standards of course curriculum and educational criteria have placed an escalating emphasis on educators to incorporate media learning into the classroom in order to stay competitive and ensure student success and technological aptitude. As our educational systems continue to stray away from traditional methods of teaching due to the influence of technology, the role of the educator has changed. From the educator’s perspective, how has the introduction of new technology into the classroom modified the ways that subjects and materials are presented, researched and applied? How have these technologies altered the dynamics of the classroom in terms of how educators approach teaching? To fully understand and answer these questions, we must look to those fundamentally involved in the process, those who are actually guiding and assisting our youth through this digital maze: The educators and teachers themselves.

*How has the role of the teacher/educator changed as a result of new educational*
technology? What are some factors influencing teachers’ use of technology in the classroom? How do teachers generally feel about educational technology?

The reason for this analysis is to better understand how educational technology has either facilitated or hindered the approaches that high school educators are using within their everyday practices. The functional intent of this project is to investigate current teaching practices and teachers’ perceptions of technology in order to determine the inherent value of this push for technology in the classroom. The larger goal is to find a reasonable compromise between these educational technologies and traditional teaching practices. If educators can develop a reliable means of teaching media literacy and competency within the school system using these technologies, this may help assuage some of the social problems that now exist with children’s use of technology and media. This could also potentially result in finding new ways to incorporate these forms of technology and media into the larger society.

In anticipating what this study may find, it is likely that some previous assumptions may change and teachers are in fact not as resistant to educational technology. When used properly, technology can provide incredible benefits to both teachers and students at other times it can detract from learning. The issue is not necessarily that technology is the problem, but rather the lack of development and understanding on the part of the users, the teachers and students. Educational technology has produced numerous benefits for teachers and this study is not discounting that fact. It
is recognized that technology as a resource tool, has contributed endless possibilities for student learning, yet there have been negative aspects as well. These are not necessarily the fault of the technology as much as misuse, inconsistency, and a lack of understanding from the education world.

The area of educational technology is expansive and well researched, thus there are many topics and larger issues regarding educational standards and practices that this study will not explore. This project intends to illustrate how the incorporation of new media and technology has potentially mediated the classroom environment and subsequently changed the role of the teacher, all of this from the perspective of the professional educator. While this project will introduce some historical background and a general review of recent studies and research, the majority of the content will originate from the exploratory research and original data collected for the purpose of this study. Additionally, this study does not reject the notion that educational technology can be a beneficial and effective resource within the classroom. Rather it reviews how these tools are being used, what they are replacing and to what degree are they necessary for achieving academic success.

In order to better define the boundaries and limitations of such a project, primary research data will be collected from current teachers and educators as well as other professionals within the field from the state of Minnesota. Minnesota has consistently ranked very high nationally in terms of educational standards and student academic
success. Therefore I chose to focus my research on this particular region because of these standards, and also because of my close connections to the state and many of the teachers and educators within the educational system there. Furthermore, to maintain consistency within the research, only high school history and social studies teachers will be included in the survey. Other interviews were conducted with different members of the administration as well as the Senior Technology Planner/Director at the Minnesota Department of Education. Additionally, I participated in classroom observations as well as follow-up interviews with the teachers of these classes. The intentional concentration on the subjects of history and social studies stems from the nature of the subjects themselves; compared to other high school courses, both history and social studies possess relatively fixed materials without much deviation in terms of the content itself. Unlike other fields of study that may change, the subject of social studies/history remains a subject where the content can be taught through traditional methods without much being lost in the translation. This study plans to examine this issue through a teacher survey, interviews, and classroom observations to gain a better insight into the applications of technological tools in the classroom. By developing a survey that will investigate the systemic relationship that these educators have with the new software and hardware technologies, I hope to be able to critically examine the function of this technology. The goal is to better assess their logistical and practical validity and justification for standardization within our high school curricula. Supplemental
participation in some observational field research will help to analyze how educators are using technology in the classroom and the dynamics of the relationships that both the students and the teachers have with these tools. The subsequent chapters will explore this topic in-depth.

Chapter One provides an overview of past research and literature, relevant statistics, and applicable definitions of key terms. The themes that will be highlighted within this chapter include an analysis of the classroom itself and the current and changing role of the teacher/educator. Chapter Two presents a detailed look at the individual challenges and pressures associated with this situation. This section will provide further details exploring the pressures that educators face regarding the incorporation of educational technology as well as present challenges facing teachers. The pressures have been separated into three tangible sections - Institutional, Professional, and Social pressures - all of which are influential in understanding the current and future role of the student teacher. Chapter Three expands upon the larger analysis and critiques of others and introduces some of the core factors that surround this issue. Chapter Four offers a discussion of the method used for collecting the primary data from the fieldwork, which will be used for analysis. In addition, this section will offer some background statistics and information on the state of Minnesota and its educational system. Moreover, this chapter will look for commonalities and differences among technology uses by some of the educators from this region. Chapter Five serves as the
data analysis chapter and will present the fieldwork and examine the collected data to provide a summary of the findings, both statistical as well as qualitative. This chapter will also highlight some of the individual perspectives and opinions from those teachers and administrators involved. Finally, Chapter Six works to tie everything together. In addition to conclusions, this chapter will also present a discussion of the implications of this project and of potential directions for future study.

The educational system in this country is intended to provide a solid foundation for our youth and prepare them for future success. As a society, we must recognize that over the last couple of decades, there has been a shift in our educational structure and a reconfiguration of standards and expectations. As technology has rampantly infiltrated our society in almost every imaginable facet including education, it is our social responsibility to critically investigate how this movement has not only influenced the basis for student learning and achievement, but also potentially changed and/or modified the role of those teaching our youth and establishing that framework for learning.

Appreciating previous contributions to this field of work, the intent of this project is to offer a new voice into the larger conversation as to the evolution of education, particularly from the perspective of the teacher/educator. Given that the primary focus of many earlier critiques have solely investigated the influences on the students, this voice will that of the teacher. This project is not intended to provide a definitive answer to the question being asked. Instead, it is the aim of this project to provide further knowledge
and understanding for the larger debate as to the future of not only the professional educator, but also the larger educational system and culture.
Chapter 1. Literature Review and Research: “Study Hall”

Learning in the minds of most people refers to a process of acquiring knowledge or skills, while teaching and instruction are activities that can sometimes aid this process. Psychologists have provided rather more technical definitions, in which learning is seen as a change in behaviour due to experience or practice, and teaching is regarded as the facilitation of that process by means of the deliberate intervention of a human being or instructional system ... As far as the difference between instruction and teaching is concerned, the terms can be regarded as virtually synonymous, except that teaching is often regarded as the product of human beings, whereas instruction can derive from a person, book or even a machine.

Christopher Knapper, 1980: 46

Recent decades have seen the advent of new teaching practices, techniques, and philosophies, all with the intention of developing a stronger learning experience for the youth of this country. More recently, technology has vaulted to the forefront of these methods, providing innovative means for research and presentation while also keeping pace with social trends. Many in the educational community suggest that new educational technologies have only enhanced educational systems and created a richer learning environment by further equipping both educators and students with the necessary tools to succeed as well as function in the progressing technical age. Others however, including experts in the field, have questioned the utility, application and costs (both economic and social) that these technologies have had on our education systems
and on the fundamental aspects of learning. Professor David Sicilia proposes that there are two main players in this debate, the ‘Technology Advocate and the ‘Uninitiated or Skeptical’. According to Sicilia the two are defined as such. The “Technology Advocate: Newer is better; technology always enhances; this is how we remain current in our rapidly changing world … Conversely, … The Uninitiated or Skeptical: Newer is not necessarily better; technology sometimes creates more problems than it solves; before I invest a lot of time in this, you must prove to me that it is more effective than traditional teaching methods in its own right, as well as positive from a cost-benefit perspective; or in its most pointed articulation – this is yet another example of the misguided fascination with high-tech ‘gimmickry’ ” (Sicilia, 1998: 73). Regardless of the position that one takes within this larger debate, questions about the longitudinal consequences of such innovations and our seeming reliance on them has been contested by many and will continue to be a topic of discourse as more and more technology is incorporated into our foundational educational structures and standard practices. The assumption has been that technology is ‘good’ and serves its users in a beneficial manner. While this may be the intention, reality may differ.

Investigating current high school standards of course curriculum and educational criteria has shown an escalating emphasis on educators to incorporate media learning into the classroom in order to stay competitive and ensure student success and technological aptitude. As our educational systems continue to stray from traditional methods of
teaching because of the influence of technology, the role of the educator has changed. From the educator’s perspective, how has the introduction of the computer into the classroom modified the ways subjects and materials are presented, researched and applied? How have these technologies altered the dynamics of the classroom in terms of how educators approach teaching and their relationship to their students? Is the art of teaching and the role of the educator being lost or better yet, perhaps replaced? By highlighting the research that has already been accomplished in this area, we can gain a better understanding of the direction that this project will take and the potential obstacles that we may encounter.

There have been many individuals, both within the academia as well as outside, who have debated this topic of technology and its place in the classroom. Numerous approaches have been discussed, and while all have contributed to the larger discourse, there have also been questions left unasked and uninvestigated. In order to examine this issue to a deeper, more specialized degree, one must first recognize what has already been done and the history of the research thus far. By providing a background of the literature that comments on these larger issues, a foundation for future exploration can be established, and different models and methods for such a study can be presented.

This review will be divided into defined sub-sections in order to better categorize pre-existing research and to maintain focus for developing the overall project. Beginning with the classroom environment itself, it is crucial to understand the current culture that
exists within the classroom and the relational dynamics (student-teacher, teacher-technology, student-technology) that have been mediated by new technology. The subsequent section will look more specifically at the teachers and how their role has been redefined through the incorporation of technology. This section will also spend time reviewing the specialized uses and applications of such technologies in combination with the training and development that is being required of educators in order to successfully institute these technologies. Following this section will be a closer investigation of some of the current problems and concerns that exist regarding such implementation as well as insight into some of the unforeseen challenges are predicted to that lie ahead. Finally, the last section focuses on the current critiques, theories and analysis of such innovations within the classroom and will offer explanations and future directives.

“Before the Bell” - *The Facts about Technology/Media Use Away From the Classroom*

First and foremost, it is important to understand how we arrived at this topic and why it is significant. The truth of the matter is the youth of this culture are inundated with technology in almost all capacities of their lives. A study conducted by Roberts, Foehr and Rideout in 2005 suggested that the average youth spends almost 6 ½ hours a day using media, which includes most defined technologies (Roberts, Foehr & Rideout
This fact alone remains alarming enough without even accounting for the amount of media and technology that children are experiencing in the school environment. This being said, one question that emerges is: to what degree can we justify promoting more media and technology use within the classroom if our youth are already so overly exposed? Recognizing the amounts of technology that any given individual uses on a daily basis can be subjectively difficult to determine; however, another 2005 study found that 87% of teens aged 12-17 used the Internet, which demonstrates how significant new technologies have become with our youth generation and how this generation is defined by the “technological environment” within which they live (Lenhart, Madden, Hitlin 2005). While the functions and applications of most adolescent use may vary between social interaction, educational searching and just simple curiosity, there is a definite concern among many that socially we have not done enough in terms of standards and regulations for technology use and media content. Ironically, there is an attitude among many parents that any computer use is beneficial regardless of the context. There is an assumption that their children will need to use computers later in life so developing those skills now is a plus (Rideout & Hamel 2006). This issue will be later discussed in the chapter on pressures, which specifically examines social attitudes and pressures that are influencing our changing educational system.
Many in this society perceive technology as being the medium that leads to future professional success. This view is rationalized by recognizing what a mediated and technologically inundated society we live in. This is simply the reality.

With their engaging, interactive properties, the new digital media are likely to have a more profound impact on how children grow and learn, what they value, and ultimately who they become than any medium that has come before. ‘Generation Y,’ the nearly 60 million youth born after 1979, represents the largest generation of young people in the nation’s history and the first to grow up in a world saturated with networks of information, digital devices, and the promise of perpetual connectivity (Neuborne & Kerwin, 1999: 80).

For these reasons, it seems logical that there be some critique and analysis of the educational media that are being employed by our schools as well as in the larger society. Culturally, we are putting such an emphasis on how our children are using new media and technology outside of the classroom that it is crucial to understand the forms of media and technology in which they are engaging.

“AAttention Class, The Lesson is About to Begin” - The Classroom Environment and Culture

A classroom and its culture is defined by the students and teacher that occupy it and not necessarily by its equipment, materials and resources that might exist. Education occurs on many different levels, in a variety of manners and with various goals. However, how do we judiciously evaluate differences between teacher and student
successes when classrooms and learning environments can have such variance, especially in terms of the technologies used? Is all educational technology in the classroom successful and productive?

Historically, the classroom has been seen as the perfect arena for introducing new systems of thought, learning tools and social upgrades. Nevertheless, the educational system has mediated these new additions by carefully understanding the applications of such resources before standardizing. Teachers have been careful to walk that thin line between being innovative and creative and staying true to the fundamental frameworks that define classroom education. More recently there has been a growing concern regarding the state of education in this country as we continue to fall behind when compared internationally (Torney-Purta 1996). However, often as is the case, culturally we debate the reasons for this problem, yet instead of investigating the situation; we search for a quick fix to alleviate the situation. In the case of our educational systems, this ‘band-aid’ has come in the form of implementing educational technology, because after all, more technology means greater student success. In fact, we are looking in the wrong direction for the solution to these problems.

Initially, we must understand the learning process and the ways in which the classroom structure influences learning. “In first-order environments, learning is asymptotic – one can become comfortably integrated into a relatively stable system of routines. In second-order environments, learning is not asymptotic because what one
person does in adapting changes’ the environment so that others must readapt. Adaptation itself involves contributions to collective knowledge” (Koschmann, 1996: 259). What we are presently witnessing is this push for a more interactive learning environment that focuses on educational technology to satisfy this desire for interactivity. The challenge for educational technology is to maintain the focus of the student learner, thus reducing the amount of passive, lectured learning that occurs in this second-order environment and encourage more interactive scholarship that connects to the outside world (Koschmann 1996). The introduction of the television was one of the first examples of mediated technology in the classroom. It was thought that this new technology would not only enhance the teaching that was taking place, but also more importantly, introduce new possibilities for learning that teachers were not able to achieve. Nevertheless, studies at the time based on the results of standardized achievement tests demonstrated that there were few ‘substantial’ differences in the amount or quality of information being learned from incorporating the television into the classroom as compared to traditional methods (Cuban 1986). Nevertheless, electronic and mediated learning within the school had begun and its influence would only grow.

For the purpose of this project, electronic learning will be defined as “learning from any device dependent upon the actions of electronics, such as television, computers, microcomputers, videodiscs, video games, cable, radio interactive cable, video texts, teletext, and all other devices in the process of being invented that are electronic in
nature” (White, 1983: 51). While this definition is someone outdated in terms of what is currently available for educational technology, the general idea has stayed consistent. An example of such an educational technology, or electronic learning, is computer mediated communications (CMC), which allows students and teachers to be able to communicate with others in locations all around the world, offering an innovative way to experience other cultures and communities ‘first-hand’ (Berge & Collins 1995). Yet question of reliability and value of this form of learning is called into question when media and computer literacy is taken into account. While the emphasis remains for interactive learning, the fundamental components of such learning are still lacking.

Brian Goldfarb, author of *Visual Pedagogy: Media Cultures in and Beyond the Classroom* argues that visual media pedagogy is the future method of teaching. Goldfarb couches his argument by advocating three important factors for developing visual media. First, we must acknowledge the importance of teaching media techniques in schools. Second, we must emphasize popular and sub-cultural media in the classroom. Finally, we must encourage students to promote media production in and out of school (Goldfarb 2002).

Although Goldfarb establishes some compelling arguments for further implementation, I have some of the same concerns regarding this approach that question what is being replaced within the classroom by this visual media. It seems convenient to argue for promoting more technology, but consequently something is being lost and/or
displaced. Additionally, as more media infiltrate our schools, separating fact from fiction and uncovering reliable information becomes a greater unforeseen challenge for both students and teachers. Being consciously aware of what these technologies represent and the variety of information that they disseminate are significant responsibilities in distinguishing educational value. Finally, in response to Goldfarb’s promotion of students to produce more media of their own, I argue that many youth already do engage media as seen through new social networking sites like YouTube, MySpace, Facebook and others. Acknowledging that this is the progressive state of many schools, perhaps before inundating our classrooms with these technologies, we need to slowly transition into this arena by first educating an understanding of media literacy. “Being media literate, however, means not only knowing when and how to use these new media, but also being able to understand both their content and their structure. It means having some basic understanding of how media are constructed, how they are distributed, who owns them, and how they express the values and the perspectives of their authors in the way they are made as well as in what they cover” (Brunner & Tall, 1999: 10). This form of learning seemingly requires a degree of the first-order learning environment to be present before any form of understanding can result.
As Brunner and Tally state when describing visual literacy as a form of interactive learning,

Teachers and students have to be prepared to understand how the mix of media – text, image, effect, and sound interrelate. The nonlinear organization of these new media presents teachers with a demand to teach students how to interpret and construct meanings in a medium that is not only brand new (and thus in experimental stage with no clear guidelines or customs to rely on) but also represents, at least potentially, a genuine shift in the way we think about representing knowledge and thus requires a new set of interpretative and authoring skills to be learned by students and teachers at the same time (Brunner & Tally, 1999: 13).

There is another noticeable trend among teachers that claims a heightened level of motivation, stimulation, and skill improvement when it comes to using innovative technology in class work (White 1983). However, what happens when this fascination dies or students become desensitized to this form of learning? At this point, teaching has already been modified. One of the misnomers about the implementation of these technologies within the classroom is that it is promoting better student work because the students are more engaged and excited about using these new technologies; there is a new motivation and incentive. Instead, this is diluting the potential work of the students. “Computer use is often seen as inhibiting the coverage of topics” (Becker, 2001: 3). Rather than contributing to student work by offering additional resources, students are concentrating more on the functions and possibilities of the technology, as opposed to the subject at hand. For example, the Internet can provide incredible amounts of materials, but without structure and a basic understanding of how to use these resources, all students
are doing is collecting masses of information and dumping it into their work without critically putting the pieces together or discriminating among those materials available. While teachers may voice excitement and willingness to incorporate new approaches towards teaching, including using educational technology, there is still a relative disconnect in the practice of these methods in the classroom where most educators are still conservative and reluctant (Knapper 1980), perhaps demonstrating that teachers tend to be creatures of habit.

At the present, there is still no firmly established standard or set criterion within schools in terms of their implementations of educational technology within the classroom. Many of the examined studies have suggested an inconsistency between educators in how educational technologies are included in the classroom. “Choice of instructional medium is not only affected by the subject matter but also the nature of the learning task, which may range from simple acquisition of facts or definitions to testing of frontier concepts in unfamiliar situations” (Knapper, 1980: 143). Education expert Larry Cuban, questions the overall value of incorporating new technology into the classroom when the outcomes are seemingly varied and undefined. Through a series of studies and ethnographic projects, Cuban established foundational questions about the potential outcomes and setbacks that both teachers and students may experience through the integration of technology into the classroom. He approached the argument through investigating “technology” in all educational environments, but found little in terms of
differences in classroom technology application when comparing gender, age, or experience with technology among current teachers (Cuban 2001a). This seems to illustrate that educators are collectively receiving little direction in terms of negotiating the application of said technologies within their teaching methods regardless of demographic distinction. These notions will be again reviewed in the subsequent chapter that examines current pressures that educators encounter.

Recognizing this lack of correlative finding between differing variable samples of teachers leads us to assume that this is a standards problem and not necessarily the fault of the educator, as some would suggest. Without establishing a standard level of practice and understanding of this shift within education, it seems logical that there would be uncertainty amongst both teachers and students in their ability to perform and be successful.

Brunner and Tally describe this transition to new instructional technology as a shifting from ‘neat’ to ‘messy’ history. Textbooks, slide shows, and other concrete materials define ‘neat’ history. ‘Messy’ history includes going through old photos, posing questions, researching archives, etc, a much more ethnographic and anthropologic approach, which must then also include technology, something that most would not consider messy, nor investigative but rather digitally created or reproduced. “Nevertheless, compared to other instructional media, such as books or chalkboards, computers primarily serve one individual or pair of students at a time. In a classroom
setting, computers may not be practical unless there is a sufficiently favorable ratio of students to computers” (Becker, 2000: 282). Overall though, it was acknowledged that many of these studies simply assume that important academic success will result from these tools.

Knowledge and learning is often dictated by the cultural community within which it is situated. Teachers need to recognize their settings. “In a teacher-centered class, the source of authority is the instructor and the text. In a learner-centered environment, the instructor is turned into a facilitator, guiding collaborative learning groups. This idea represents ‘instruction as enacted practice’” (Wynne, 2001: 26). While the tone of this analysis echoes that of others who are pushing for this collaborative style of learning and educational technologies, which are seen as supplementing student learning, it can also be argued that instead it is detracting. The danger here lies in transitioning from a teacher-centered class to an overly technology-centered one, in which case we have simply substituted the human teacher for a machine. This substitution of sorts has also led to questions regarding the cognitive development of students within the classroom and the displacement of this intrapersonal form of learning due to educational technologies.

Another valuable objective of education and classroom learning is the development of cognitive and social skills that students learn at this age. Over the last couple of decades, there has been a discernible loss of interaction between teachers and students with this transformation of teaching practices to include new innovations often
absorbing the blame. “… we can say that reported loss of interaction with students does indicate that the changes wrought by teachers’ usage of new technologies are pulling at the very fabric of their ‘deeply rooted scholastic inheritance’” (Harwood & Asal, 2007: 72). The relationship between teacher and student is what creates a nurturing and developmental learning environment. “Much learning is about the meaning and correct usage of ideas, symbols, and representations. Through informal social conversations and gestures, students and teachers can provide explicit advice, clear up misunderstandings, and ensure corrections are made. In addition, social needs often drive a child’s reason for learning” (Roschelle et al., 2001: 8). This idea regarding the social needs of the child is interesting, because it is commonly within the school setting that children learn other basic social skills such as cooperation, teamwork and other social norms in addition to this drive for social acceptance. Additionally, there is a holistic belief about the sanctity of the relationship that a teacher has with a student during these critical developmental years (Cuban 1986). However, new technologies seemingly disrupt this relationship. Any change in this relationship may cause hostility and resistance by both the teacher and student. In an age of technological communication, on-line courses, blogs, mediated classrooms, etc., have all become substitutes for the physical classroom. Yet, as some in the field of education would argue, this form of learning can never replace the traditional classroom or the interpersonal teacher-student experience. As author and educator Brian Simpson reasons, “Machines cannot be warm, sympathetic, or encouraging” (Simpson,
1985: 85). Lost in this translation is the personal touch and unique experience of human interaction. While the technician and engineer stress technology offering faster, more accurate and efficient informational learning for meeting educational objectives, the goals of the human educator are often more subjective, personal, and holistic. Technology interrupts this relationship for student learning. “… the use of technologies that either displace, interrupt, or minimize that relationship between teacher and child is viewed in a negative light. The holistic view and the belief in the sacred importance of rapport with students as a foundation for learning are harnessed to an assumption that teaching is an art. Improvisation, imagination, tempo, pacing, and creativity outline in a general way the subtle, imprecise, and intangible aspects that pervade teaching” (Cuban, 1986: 61).

Limitations placed on students’ imaginative capabilities are another consequence of this digitalized learning. Professor of Computer Science at MIT and inventor of the Logo language learning program, Seymour Papert’s essay entitled Mindstorms, discusses the beneficial uses of machines in education and how they are encouraging original thought (Davy 1985). Papert’s key argument in the essay proposes a new way of learning through models and in the case of his study, through computer mediated programs such as LOGOs. Papert believed that what and how an individual learns depends on the models that he/she has available to them and how they understand them (Papert 1993). John Davy, former educator turned administrator, counters this argument by suggesting that cognitive development suffers from this overuse of machines (computers) for
teaching. Imagination and artistic education is lost, which is one of the potential pitfalls of computerized learning (Davy 1985). In a sense, what we are doing is taking the creative capacities out of the hands of the students, i.e. science projects, constructing maps, and replacing them with a more restricted set of pre-constructed tools as defined by the technology, for which we hope they can operate to produce tangible outcomes.

A study by Zane Berge and Mauri Collins that focused on teachers’ uses of electronic networking with students, found that students worked cooperatively and improved social interactions when work was done in pairs or groups. Their findings suggested that teachers thought it was easier to use structured programs that were guided online; however many teachers also modified said programs and creatively found other ways to supplement programs and teach. Furthermore, the study raised the cultural awareness of students who could communicate with individuals in other locations. However, Berge and Collins also recognized five important categories required for successful computer mediated communication (CMC): technical support, time, computer equipment, software and network access. All of these cost money and time, and have tendencies to fail or become outdated. These issues will be discussed later on in the section looking at current challenges.

Ultimately, the use of new technologies within the classroom is situational. Educational technologies are typically used as supplemental resources for maintaining interest or at times for innovative methods when standard or traditional resources aren’t
engaging. “Teachers will use new instructional tools to the degree that the classroom and the occupational culture finds acceptable” (Cuban, 1986: 66). Slowly, we are seeing the influence and standardization of these tools within the classroom take away any degree of choice that teachers may once have had. Nevertheless, there seems to be a lack of a consensus on what exactly these new technologies should be promoting and in what capacities they should be displacing traditional methods. What are the goals of these technologies; and are our teachers and educators aware of these goals? If not, then all that these technologies are doing is replacing the skills and practices of our teachers perhaps with substandard results.

In 1989, Apple Computers designed an evaluation entitled “Classrooms of Tomorrow”, which was considered one of the most well studied efforts to teach computer technology in the classroom. Apple realized that the form of ‘project-oriented learning’ (which has students learning through interaction but the teachers simply facilitating) that was occurring in classrooms was not the optimal or intended purpose of the computer. The degree to which students learned actually had more to do with the teaching of the educator than the functions of the computer itself (Oppenheimer 1997). Some of Cuban’s findings reemphasize this point by concluding that regardless of the use of new technologies in classroom, this did not necessarily predict changes in teachers’ classroom practices. In general, teachers seem to be continuing to use new technology in the same ways that they did before, to communicate with parents and administrators, prepare
syllabi and lectures, record grades, assign research papers, and so forth (Cuban 2001a). Unfortunately, teachers often have little influence on the design and implementation of new technologies, but are rather expected to adhere to the standards and regulations bestowed upon them by school boards.

So what are some of these technologies and their intended objectives? *Digital History*, a book written by Daniel Cohen and Roy Rosenzweig, argues that digital media present educators and students with a new ‘flexibility’ for learning about a topic. This form of media grants the availability of resources that may otherwise be unavailable. Materials such as first editions, one-of-a-kind pieces, uncommon sights, sounds and visuals of things that could not have been reproduced before, and items recently found or discovered are now made available (Cohen & Rosenzweig 2006). Digital media also allow for a degree of interactivity, such as Google Earth, which can virtually take a student to anywhere in the world. Nevertheless, these experiences are no more ‘real’ than those pictures and materials were before; they are simply more detailed and enhanced. This is not to suggest that there is no place for this new technology or that it isn’t remarkable in its capabilities. Rather, we need to take stock in what we are presenting and understand the limits and responsibilities involved with such participation.

Thus this leaves us in a precarious situation in navigating the future of educational learning, seeing as how we cannot assume that simply because a given classroom may be more modernized or technologically advanced that it necessarily produces greater
success. We recognize and accept that differences exist among teachers and their methods; some are more successful than others. The subsequent section will look specifically at the role of the teacher and the challenges that many are facing.

“I Have a Question?” - The Role of the Teacher

Teaching is one of the few occupations where practically everyone learns firsthand about the job while sitting a few yards away, as students, year after year. We all have absorbed lessons on how to teach as we have watched our teachers...Recruitment and selection, then, bring into the profession people who tend to reaffirm, rather than challenge, the role of schools, thereby tipping the balance toward stability rather than change.

Larry Cuban, 1986: 59

How do teachers and educators use technology in the classroom? How are they learning how to incorporate these tools into their teaching methods? More importantly, how are they negotiating and appreciating this evolution in education as a change in their role is taking place?

Teaching Philosophies:

Henry Becker, a Professor of Education at the University of California – Irvine, introduces what he sees as two distinct teaching philosophies, both of which are important in understanding this current movement in education methodology. The two
teaching philosophies that Becker proposes are ‘Traditional Transmission Instruction’ and ‘Constructivist-Compatible Instruction.

- Traditional Transmission Instruction is based on a theory of learning that suggests that students will learn facts, concepts, and understandings by absorbing the content of their teacher’s explanations or by reading explanations from a text and answering related questions. Skills (procedural knowledge) are mastered through guided and repetitive practice of each skill in sequence, in a systematic and highly prescribed fashion, and done largely independent of complex applications in which those skills might play some role.

- Constructivist-Compatible Instruction is based on a theory of learning that suggests that understanding arises only through prolonged engagement of the learner in relating new ideas and explanations to the learner’s own prior beliefs. A corollary of that assertion is that the capacity to employ procedural knowledge (skills) comes only from experience in working with concrete problems that provide experience in deciding how and when to call upon each of diverse set of skills (Becker, 2001: 9).

Becker posits that a teacher’s individual philosophy plays a large part in determining whether or not he/she uses educational technology in her/his teaching methods. This along with the individual teacher’s expertise with technology, his/her professional involvement in and out of the classroom and the number of computers in the class, all play significant roles in their willingness to adopt new technological strategies (Becker 2001). Recent studies have confirmed that this constructivist-collective teaching philosophy has produced better academic success among students, therefore current
professional development in education has shifted from the traditional “transmission” model of teaching to one of a more collaborative learning form (Koschmann 1996).

**Learning How to Teach:**

Teachers still view their classrooms in non-technological terms. Educators see their responsibility as something more than simply technicians and their students as more than just products of information. Unlike other occupations, teaching is a profession to which most teachers have been apprentices for years before even beginning the trade. As Timothy Koschmann declares, “Essentially, knowledge about teaching is embedded in the act of teaching itself” (Koschmann, 1996: 273). Teaching is intuitive and imparting knowledge to others requires skill, typically based off of experience. “What an expert teacher gains from experience is not more rules of coaching of the sort they once explicitly followed as beginners. Rather, the teacher learns intuitively and spontaneously to provide the tips and examples needed by the advanced beginner, and to motivate the involved practice by which a student gains proficiency in any domain” (Dreyfus and Dreyfus, 1985: 61-2). Teaching is also more than just an occupation; it is a profession that allows them to create relationships, to work with others and to be a part of a community. “Teachers tend to teach by using methods their own teachers employed, and the computer was not part of most teachers’ education. Moreover, a large number of
teachers chose their profession because they wanted to deal with people not machines” (Vockell & Schwartz, 1988: 114). Teachers are learners and role models; they are students as well as and build upon their own skills as teachers through experience, evaluation and integration of new ideas (Koschmann 1996). All the same, the current movement in teaching requires a shift in their role (White 1983).

**The Teacher’s Changing Role:**

We need to examine why there is this expectation of added responsibility on the individual teacher to teach computer skills, especially when this is not the focused subject. Most teachers use classroom methods that are similar to what they experienced as students and what they related to and were comfortable with. Teachers habitually imitate styles and approaches that they found interesting and creative (Cuban 1986). Yet arguably, new technology doesn’t necessarily allow for nor promote individuality and creativity in the classroom, thereby undermining the individual styles of the given teacher. New educational technologies could be seen as trivializing or demeaning the profession of teaching as these tools are becoming substitutes for some of the classroom content, thereby requiring less of the teacher to actually, well, teach. Some suggest that this implementation of educational technology is shifting the role of the educator away from “dispenser of prefabricated facts to coach and guide” (Brunner & Tally, 1999: 33).
These potential new roles for teachers include being a sort of instructional manager, gatekeeper, or coach “helping students to capitalize on their strengths and providing a constant source of learning, review and evaluation” (Knapper, 1980: 138).

Patrick Reagan emphasizes this need for educators, primarily historians, to evolve in their teaching practice so as not to be left behind in the wake of evolving instructional technology. Reagan highlights the value and limitless possibilities of teaching and learning through the World Wide Web and sees this as a crucial decision for all educators. “If historians as teachers do not make the effort to join students in using these new means to help them in understanding the significance of history as a way of thinking, seeing, listening, and envisioning the past and present, we may wake up to a future that emerges as a dystopian nightmare rather than a utopian vision” (Reagan, 2002: vii-viii). Reagan’s book, like many others of this era, lays out strategic methods for easy usage of the Internet in the classroom for teachers in addition to providing a thorough list of WWW example sites. However, I question where the active teaching is occurring. What then is the role of the educator? Successful learning occurs through experiences and activity, not necessarily from more passive media, especially in an uncontrolled environment such as the World Wide Web.

In their 1999 book entitled, The New Media Literacy Handbook: An Educator's Guide to Bringing New Media into the Classroom Cornelia Brunner and William Tally discuss this notion of media literacy and start at the source of education, the teachers
themselves. Brunner and Tally contend that teachers/educators recognize this change in the educational structures of schools due to new technologies, yet they feel limited in their capabilities due to the resistance of the hierarchy with many school boards. As a consequence, a change in the role of the teacher and how he or she approaches classroom learning is required (Brunner & Tally 1999). Teachers are,

To develop self-initiated learners in the information-age school, the teacher’s role must evolve away from dispenser of prefabricated facts to coach and guide. In this continuously changing role, teachers leave the fact-finding to the computer, spending their time doing what they were meant to do as content experts: arousing curiosity, asking the right questions at the right time, and stimulating debate and serious discussion around engaging topics (Brunner & Tally, 1999: 33). Some would say that this sounds as if the role of the teacher is being trivialized and becoming one more of a student or a technician than of a teacher and to a degree perhaps it must.

**Teacher Uses of Technology -**

The job of the teacher is to present subject material in a manner that is organized and offers the students a sense of structured familiarity for learning in order to achieve better retention. While at times there has been a social perception that teachers avoid or rebel against the use of technology in the classroom, this stubbornness is often due to the perception of power and authority being lost (Cuban 1986). In fact, teachers embrace change when it is required to be more effective, yet typically these changes are in ways
that support their knowledge and authority in the classroom rather than undermine it (Cuban 1986). Teachers will judiciously modify their classroom procedures in order to solve problems and overcome teaching obstacles, and more frequently, it becomes a question of maintaining student interest. But the incorporation of technology into a course or lesson is not as easy as simply turning on a computer. As Ashburn and Floden suggest, there are six important elements that teachers must recognize in effectively teaching with technology: allowances (or available tools), integration, content, appropriateness, effort, and time (Ashburn & Floden 2006). Taking into account all of these factors can be an arduous undertaking for some, especially those that are more comfortable and familiar with more traditional forms of teaching.

Interestingly though, it has been found that those teachers who do attempt to engage with technology tend to do so more during the school day than do the students themselves. However, the reasons for this differentiation lies with teachers using technology more commonly for administrative purposes, i.e. taking attendance, submitting grades, etc., than for necessarily incorporating technology into their lessons (Harwood & Asal 2007). In general, at the high school level, teachers were still engaging with their traditional approaches to instructive teaching and simply using technology as an effective supplement for conveying information to their students (Harwood & Asal 2007).
Obstacles and Challenges -

Educators encounter new challenges year in and year out. More recently however, a new degree of pressure has been placed upon the schoolteacher to stay up-to-date with current social trends and therefore adhere to new teaching practices, which include the use of modern technologies for instruction. However this alteration does not come without obstacles. Besides having to mediate a given technology to understand its uses and applications within the larger course content, there are often other more complex transitions and changes that need to take place. “Teachers who succeed in using technology often make substantial changes in their teaching styles and in the curriculum they use. However, making such changes is difficult without appropriate support and commitment from school administration” (Roschelle et al., 2001: 22). Angela Crow discusses one such concern among educators through investigating the different forms of new technologies that teachers/educators are learning to implement, but centers her argument around the notion of ageism and gender differences. Crow suggests that students may assume less of older teachers, not in terms of knowledge, but in terms of technological understanding, and thereby regard their methods as outdated and irrelevant (Crow 2006). The issue here remains that there is a level of fear among current educators, that they may be outsourced by these new technologies as society continues to cultivate expectations of adequacy and aptitude. Age and gender stereotypes will
continue to exist within educational boundaries as they do outside of them; and the subjective attitudes that we may have about certain teachers and their perhaps outdated methods will be perpetuated but perhaps unwarranted. “The older teachers were not always able to tell what type of access they had in their classrooms, whereas the young were. … There is, therefore, juxtaposition between what we term old school teachers and their younger new school, more technologically savvy colleagues” (Harwood & Asal, 2007: 56).

In their book, Educating the First Digital Generation, Paul Harwood and Victor Asal also address the issue of teacher/educator accessibility with these technologies. Teachers had limited access to the Internet and specialized software programs, as well as having a general ineptitude with certain applications and resources and a misunderstanding of what was being asked of them (Harwood & Asal 2007). Additionally, there are perceptible differences in faculty abilities when participating with new technologies. This battle between ‘old school’ and ‘new school’ teaching has, in some instances, created a new level of dissension between teachers, often becoming more of a generational consequence, younger versus older, than anything else. There is also a concern among many educators that they can simply not keep pace with advancing technology. Many are finding it not necessarily even being a matter of their own technological savvy or experience, but rather that school curriculum and standards are not changing at the same rate that technology progresses. Whether due to economic
limitations, the bureaucracy of the school boards and administration or even teaching training and development, even when updates and modern renovations do happen, they are quickly outdated by social standards.

The difficulty for most educators is attempting to determine how to incorporate a given strategy or resource into the course content in an effective and meaningful way (Koschmann 1996). The majority of educators would welcome certain aspects of this approach to learning, however, what typically occurs is that these projects take much longer than anticipated thus leaving little time for discourse and reflection about a given activity, which in reality should be the primary intent (Brunner & Tally 1999). Then there are also other critics who argue that excessive use of any technology in the classroom, as a teaching resource would question the capabilities of the educator themselves and their ability for imparting knowledge (Cuban 1986). Given this push and pull between educational values and social pressures, the dilemma for many teachers becomes one of compromise, yet without recognition. “Not unexpectedly, classroom teachers emerge as the villains in the saga of educational technology. Teachers exercise free will; they can do what they want. They are free to use the film projector or turn on the console, but they choose not to and so can be blamed for not embracing machines” (Cuban, 1986: 62). Thus reinforcing the current argument among many that the potential for instructional improvement within education exists, it is simply not being utilized. “Many teachers will continue to teach major units of instruction interestingly and
effectively without computers; this should not be discourage. What is to be discouraged is the blind resistance to computers without examining what they have to offer” (Vockell & Schwartz, 1988: 115). In the end, the teacher does have the final say in what occurs within the walls of his/her classroom, but mounting cultural pressures have caused greater anxiety in an occupation that already is defined by it.

**The Conclusion -**

*Remember: 95 percent of knowing how to teach with computers is knowing how to teach. A bad teacher is not likely to become a good teacher just by using computers.*

Vockell & Schwartz, 1988: 113

Generally speaking, scholars have found that teachers still prefer active learning through more traditional methods, although many are recognizing some value in classroom technology (Ashburn & Floden 2006). Even so, with new media and the endless means of information offered by these technologies, teachers are finding that they are being required to weed through endless amounts of worthless materials to uncover accurate information and resources. While technology can provided limitless content, it can also cause more confusion and frustration about what is valuable for the educator and students. “The folklore, occupational wisdom, norms, and daily teaching practices reinforce what is, rather than nourish technological innovation” (Cuban, 1986: 60). In the
past, education was somewhat more nicely packaged in books and materials that were edited, of solid content, and reliable. Now, to a degree, reliability has been lost and subjective interpretation has become standard.

“Homework” - *Review and Future Directions*

Throughout the investigation of this topic, some gaps have become clear. What seems to be missing is an overall understanding of the functions and aims of new technologies and therefore the clear responsibilities of educators within our schools. Given the research that has been critiqued throughout this literature review, we can appreciate the enormity of this topic and the multiple facets that exist. It is clear that there are profuse opinions regarding this issue, and a considerable degree of discord among experts in the field as well as though chiming in from the outside. From those who advocate more educational technology implementation and use within the classroom, to those that see educational technology as only being a temporary band-aid for larger systemic problems and who fear the potential consequences of such reliance and influence, the debate continues. In an interview done by Wired magazine in 1996 with Steven Jobs, one of the founders of Apple Computer, where Jobs tells Wired, “What’s wrong with education cannot be fixed with technology. No amount of technology will make a dent … You’re not going to solve the problems by putting all
knowledge onto CD-ROMs. We can put a Web site in every school – none of this is bad. It’s bad only if it lulls us into thinking we’re doing something to solve the problem with education” (Oppenheimer, 1997: 17). Yet with society advancing at the pace of technology, it will be difficult for education to maintain its traditional roots without getting swept up in the excitement of the infinite possibilities that technology offers.

There is an untested assumption that all educational technologies are beneficial within the classroom. I would argue that while these technologies may aid in student development, the art of teaching is being replaced with computer programs and educational media. Without fully understanding the role of these technologies within the classroom, the role of the educator is becoming one more of a mediator for new technologies than teacher of content.

This project intends to contribute to the larger discussion is a better understanding of the educator/teacher’s perspective of how he/she views and recognizes these technologies and where they feel their interests lie. While I believe that most educators will respond favorably in acknowledging that new technologies have assisted in their everyday teaching practices both in preparation and in presentation, I do foresee there being concern as to the progression of this trend and potential fears of being left behind and outdated. As we continue to try and keep up with advancing technology, this trend has noticeably changed the environment of higher education. These changes seep down into our high school and elementary school systems as well.
There needs to be greater awareness of children’s media in the larger society. It is the purpose of this project to elicit further attention towards and critique of the educational media and technology currently used inside of the classroom. As previous studies have indicated, there is already a social push towards regulating children’s media as well as developing further media literacy among children. While teachers and educators shouldn’t necessarily be held solely liable for such a responsibility, there is some rationale for developing media literacy and an appreciation for using these technologies in the classroom.

Informed by primary fieldwork that included interviews with current administration, the following chapter will examine more specifically those institutional, professional and social pressures that today’s educators are finding themselves constantly encountering due to this change in educational instruction.
Chapter 2. Pressures and Challenges: “In Class Work and Discussion”

*Technology alone does not teach. Worse, if it teachers, what it teaches may not be what we want it to teach.*

Ashburn & Floden, 2006: 153

There are numerous issues that plague this current topic and perhaps the most common of those is the issue of accessibility. Regardless of the perspective, there has been a call for greater accessibility for both students and teachers when it comes to educational technology. Teachers believe that should technology become a standard part of the classroom setting, then logically there is a necessity for students to have access to computers and technology at home as well; although it should be noted that many educators suggest that access to home computers is not a necessary component for the subjects they teach. The problem with this call for more home accessibility lies in the fact that there is a large social disparity between those who have access that those without. Recent studies have shown that socio-economic status play a large role in determining child access at home, where higher income brackets showed 80% of children having home computer access compared to 54% of children in lower brackets (Sutherland 2001). These differences also extend to the quality and up-to-datedness of these technologies.
Issues of equity, including socio-economic status (SES), referring to more than just access, also if using appropriately also have presented. “… issues of whether students from low-socioeconomic backgrounds and students who present relatively unsuccessful school histories can be given the same kind of demanding tasks and depended upon to act as responsibly as more advantaged and more academically successful students” (Becker, 2001: 5). An even greater distinction between the digital “haves and have-nots” among our students is occurring thus adding additional pressure to the educator to recognize this dilemma. Consequently, educators must understand that any educational technology that may be incorporated into a given lesson need not place any underprivileged student at an even greater disadvantage than before; not only in terms of access either, but also in terms of the quality of education they are receiving (Harwood & Asal 2007). In a study conducted by Professor Henry J. Becker, he found, “common patterns between teachers of different subjects: games for practicing skills are used much more be teachers of low-ability classes in all subjects than they are used by those who teach high-ability classes” (Becker, 2001: 7). The question here is why are games being used to teach in low-ability classes but not the high-ability? Is this not trivializing the potential of these ‘low-ability’ students by not offering them the same of level of learning? How are they ever to succeed? The quality of teaching has been altered to once again mollify to these individuals. This results in not only a dividing gap between student classmates, but also creates potential problems for the educator that now
needs to mediate these differences in not only individual assessment but also in insuring that each student learns and understands the material. To augment this problem, teacher-training programs aren’t necessarily demonstrating how to effectively use technology in teaching practice (Bolt & Crawford 2000).

Educational technology is time consuming, expensive and labor intensive. However, it remains seen as a way “to enhance the process of teacher learning” (Koschmann, 1996: 303). What has failed to be realized is that this changes the ways that students learn and approach the classroom. There are issues concerning a lack of infrastructure, less than adequate funding for this type of learning and even when funds are available, simply installing technology doesn’t result in better teaching or more successful students (Bolt & Crawford 2000).

The best educational software is usually complex – most suited to older students and sophisticated teachers. In other cases the schools have been blessed with abundance – fancy equipment, generous financial support, or extra teachers – that is difficult if not impossible to duplicate in the average school. Even if it could be duplicated, the literature suggests, many teachers would still struggle with technology. Computers suffer frequent breakdowns; when they do work, their seductive images often distract student from the lessons at hand – which many teachers say makes it difficult to build meaningful rapport with their students (Oppenheimer, 1997: 8).

Where is the value in this? In attempting to stay fluid with the advance rate of change that occurs with technology, can we realistically suggest that trying to keep up with technology is realistic and cost effective? In comparing the expenses of updating technology on a yearly basis, “Most schools probably don’t even purchase new books
with that frequency, and books required a lot less overhead in terms of maintenance, support and training in their use” (Bolt & Crawford, 2000: 43).

Educators have also voiced other concerns in discussing this influx of new technology into the classroom. Some being issues of student privacy, where some schools are now using CCTV cameras in classrooms and halls to monitor student behavior. Additionally, there are concerns regarding plagiarism and recognizing potential cheating among students in this digital age. When students regularly know more about a given software or application than the teacher, there are potential problems in discerning academic integrity (Harwood & Asal 2007).

Eventually, it must be recognized that there are other problems that should be examined before simply introducing a new potential band-aid, thus creating another messy situation in attempting to correct what is wrong with our educational system. What has been overlooked are the blatantly obvious problems that presently plague our schools, such as overcrowded classrooms, poorly maintained facilities, a lack of administrative support, and insufficient pay and benefits packages. “It is important to examine the situation that teachers find themselves in, and to ask whether this isn’t another situation of tossing technology at a problem and asking the human facilitator to make adjustments” (Bolt & Crawford, 2000: 30).

At any rate, within any profession there are elements that can play into ones’ development and success. Teaching is no different. In appreciating the themes and
critiques that were reviewed in the previous section, along with my own personal conversations and experiences with current educators, I have come to recognize various factors that influence the everyday practices of schoolteachers. These factors constitute pressures experienced by teachers regarding classroom technology. I have classified them into three distinct categories: Institutional, Professional and Social. The following three sections will highlight the nature of each of these pressures as well as the challenges that each poses for current and future teachers and the empirical work will address their realities.

**Institutional Pressures –**

Like most corporations, there are levels of hierarchy that help to maintain standards and the status quo within any institutional environment. Our culture has been defined by this organizational model, and while democracy does play its’ role as a form of checks and balances for negotiating power within a given institution, there is still procedural order in terms of decision-making. Within education this hierarchy is organized. Whether from the state education department, the district school board, the individual school administration or even the department itself, there are levels of hierarchy that dictate the direction of teaching and the classroom. Educators typically are near the bottom of this totem pole, although most would argue that their input is greatly significant but often unheard. The pressures that teachers encounter at the institutional
level are typically procedural, standardized and mostly administrative policies that are ingrained into the culture of education.

In terms of educational technology, teachers often ask different questions about these technologies than say institutional administration. While administrators, school boards, state and federal policy makers, and other scholars concern themselves with productivity standards, costs and issues of accessibility in looking at the greater whole, teachers question the content. How a given technology fits within the course curriculum and design, how much time does it require, what can be done with this resource and ultimately, is it necessary or simply just a glamorous innovation are at the forefront of teacher interest (Cuban 1986). Teachers think about not only the classroom as a whole and larger learning environment, but also about their individual students and their capacities for learning. It is the responsibility of the teacher to determine the best and most reliable way to achieve this success, whether through technology or not.

Nevertheless, due to disappointing success rates and achievements among our students over the past decade plus and with the U.S. continuing to fall behind internationally in regards to education standards, there has been an outcry for critique and a call for change within our educational systems (Cuban 1986). Thus, once again we find ourselves facing a procedural problem, which instead of critically investigating what is happening in our schools, instead there is this belief that we can resolve these problems by introducing new technology. There is dissatisfaction with old methods of teaching,
what is often referred to as lecture style, where students are being preached to for the majority of the class and are limited to any possibility for interaction (Perelman 1992). Yet, it seems logical to suggest that there are alternative ways to go about resolving the lack of interactivity within the classroom without simply adding new hardware and software. An area of concern that seems to be under addressed is what is occurring within the other areas of these students’ lives outside of the classroom and school. This however, is the topic for another debate.

One potential reason for the lack of enthusiasm for change among teachers and administration is due to the lack of incentive for instituting technology. “At worst and commonly, the typical school environment is pregnant with disincentives which, over a period of a half century or more, have proven highly effective in preventing or reversing technological change in education” (Perelman, 1992: 225). Many advocates promoting educational technology have suggested recognition and rewards programs for those teachers who do effectively use technology in their classroom. It could be argued however, that a potential backlash of this could result in favoritism among staff receiving such incentives and unwarranted tension between teachers.

With administration seemingly doing little to demonstrate supportive encouragement for the incorporation of new technology into the classroom, it is easy to understand the reasoning behind this sluggish transition. If implementation is proposed but without substantial logic, expectations cannot be placed upon educators to simply
make these adjustments and accommodations unprompted. Should this push for educational technology ever become widely accepted and incorporated, such a movement would require greater institutional support. “Strategies for effective, broad-scale adoption of particular technologies are dependent upon progress in the adoption of more challenging national and statewide goals by community stakeholders, including teachers, parents, school boards and administrators” (Roschelle et al., 2001: 23).

Furthermore, some have felt that scholastic priorities have been influenced and shifted do to this push for technology. “A major issue in teachers’ coming to use technology in their work has had to do with how that work is defined both by teachers themselves and by those who influence their work (professors in colleges of education, local and state educational administrators, union officials, and other influential teachers from the same or neighboring districts)” (Kerr, 1996: 14). While this could be defined as a sort of professional pressure, the influence from the greater institution and the administration is present as well. The level of expectation for student achievement has been raised, yet the institutional response as to how to manage this increase has not. There needs to be more collaborative work and communication between faculty and administration to better understand the needs of not only the students, but also the teachers’ themselves if we are to achieve optimal success.

Another notable pressure comes from both the state and national government agencies, which have instituted legislative directives to standardize student educations.
Commonly, these regulations are in the form of bills and initiatives that provide grants and funding for educational programs. Government sponsored programs like E-Rate, Enhancing Education Through Technology (E2T2), and The No Child Left Behind Act have continued to stress the importance and seeming obligation placed on schools to incorporate these new innovative ideals into the educational domain. Regardless of these initiatives, the one common denominator and underlying theme is a need for a standard protocol, which seemingly is far from existing due to a variety of factors including time, finances, and a collaborative consensus on what direction to go. The following is an example of the direction that one high school took in terms of negotiating the 21st century technology movement in education.

Recently, an article was published by the washingtonpost.com entitled, “A School That’s Too High On Gizmos” (Welsh 2008). The article describes T.C. Williams High School, a high school in Alexandria, Virginia that recently went through a massive $98 million dollar technological makeover, considered to be one of the most expensive overhauls to date for one school (Welsh 2008). While the perception is that there would be tremendous enthusiasm about having such technology available, the article instead reported there being a severe lack of school morale and almost a rebellion of sorts among faculty. The reason was, according to a former Alexandria superintendent, “‘technolust’ – a disorder affecting publicity-obsessed school administrators nationwide that manifests
itself in an insatiable need to acquire the latest, fastest, most exotic computer gadgets, whether teachers and students need them or want them” (Welsh, 2008: 1).

The school, which is now being referred to as “Gizmo High”, is facing internal problems among faculty who are frustrated with the latest transition.

What’s truly disconcerting is that the technology overkill is turning off talented young teachers. As one of the best here – someone whom parents seek out and students love – put it: ‘There’s a lot of things I like about computers, but we’re being forced to do an unreasonable number of computer activities. Many of them don’t fit my teaching style. We have so many hoops to jump through that some days I come in and I’m not excited to teach. All the computer activities just take us away from students (Welsh, 2008: 1).

Other teachers echoed this same attitude as well and suggest that administration has redefined the notion of building relationships through a mediated technology, whereby students and teachers now communicate through programs such as Blackboard and e-mail rather than in person. One English teacher interview by Welsh offered this,

It’s technology for the sake of technology – not what works or helps kids learn, but what makes administrators look good, what the public will think is cutting edge” … A social studies teacher agrees, ‘our students want to push a button or click a mouse for a quick A, B, or C answer. Fewer and fewer of them want to think anymore because good thinking takes time…Many students send their papers in over the Internet, and while the margins are correct and the fonts attractive, the writing is worse than ever. It’s as if the rule is: Write one draft, run spell check, hit ‘send’ and pray (Welsh, 2008: 1).

The frustrations of the teachers in this article come through loud and clear but once again seem to go unheard. There is a sentiment that teaching is no longer about conveying material or content to students but instead how much technology can be implemented and
“how paperless their classrooms are” (Welsh, 2008:1). What this article illustrates more importantly is that there is a degree of discrepancy between the administration and the actual teachers themselves in terms of assuming what is valuable as opposed to simply trendy within the classroom for not only the student but the teacher as well.

**Minnesota’s Institutional Guidelines and Plan for Technology~**

*Teachers need to change the way they teach if they wish to use technology effectively.*

Mary Mehsikomer interview, 2005

To offer some perspective on the overall direction that the state of Minnesota is heading, the following is the State of Minnesota’s Department of Education (MDE) Plan for Technology in K-12 Education for 2005-2008. In keeping pace with the U.S. Department of Education’s 2005 plan *Towards a New Golden Age in American Education: How the Internet, the Law, and Today’s Students are Revolutionizing Expectations*, calling for among other things, improved teacher training and support for more e-learning and virtual schools, the MDE developed their own state plan for technology. This technology plan, along with the *Digital Learning Plan from 2003-2004*, serves as basis for the institutional guidelines and “summarizes current trends and sets a
direction for the future that will guide the MDE, school districts, and the Legislature towards technology initiatives that truly integrate technology with learning and expand educational opportunities for students in our K-12 education system” (Mehsikomer, 2005: 4). This plan is inclusive of the criteria set forth by the state of Minnesota for all school districts, charter schools and nonpublic schools, and is inline with the National Education Technology Plan. The goals of this plan were centered on improving the following areas: Technology for Teaching and Learning, Educator Preparation and Staff Development, Technology Infrastructure and Technology for Administration and Management. The foundational beliefs of this plan are as follows:

1. Technology can expand learning opportunities and facilitate lifelong learning for all learners.

2. Technology removes barriers of time, distance, and location by providing access to information and educational opportunities beyond the boundaries of the traditional school day and limitations of the school building.

3. The learning needs of students and curriculum should be the primary influences in determining the appropriate applications of technology to learning.

4. Technology supports interactive multi-media resources that provide synergistic, interdisciplinary, and thematic compatible with multiple teaching and learning styles.

5. A global information society requires all citizens to effectively use technology to access, evaluate, and utilize resources.
6. Technology has the capacity to provide timely student assessment results to teachers so that teachers can intervene with instructional strategies that increase achievement for each student (Mehsikomer, 2005: 7).

While the basis for these beliefs appear encouraging, some may question the practicality and validity behind these assumptions. Nevertheless, although there are numerous aspects to critique within this initiative, for the purpose of time and the focus of this project, we shall examine just those that are directly related to teachers and their practices.

The plan outlines several proposals for teacher training and technology requirements within the Minnesota school system. Administrators and staff are being held responsible for technology training and support, specifically in terms of assessing these tools within their schools. Both teachers and administrators must discernibly evaluate the efficacy of these technologies and their potential capacities within a given class structure; and they must do so in a timely and judicious manner. While the issue of accessibility is recognized as varying from school to school, it is tacit that both teachers and administrators will acknowledge their school’s available resources, and subsequently modifies their technology planning in order to effectively incorporate these tools as deemed appropriate.

Looking more specifically at how the role of the teacher will be compromised by this technology plan, there is a separate section devoted strictly to educator preparations
and staff development. The foundational beliefs of this section state, “In order for learners to benefit from educational technology, all educators must be prepared for and supported in integrating technology to enhance teaching and learning” (Mehsikomer, 2005: 19). The goal of this section is to provide a standardized level of professional development that will furnish educators with the tools and know-how to successfully include educational technology into their lessons; all of this in accordance with the standards set forth by the individual schools and their districts. To assist in this process, the federal government has established the Title II A grant program, which functions by supplying government funding to states in order to improve teacher quality through training and recruitment (Mehsikomer 2007).

The plan does acknowledge numerous potential barriers that exist and provides strategies for overcoming these obstacles. Some of the more significant barriers included in this section recognize differences in: technological instructional support for staff, the scarcity of time and resources for staff development, finding affordable and quality training, standardizing professional development activities that included a technology component, interoperability amongst resources, and school districts not seeing the would-be benefits from educational technology integration. Finally, a key barrier that this initiative encounters comes from “Teacher interest and engagement in learning more about the value and benefits of technology to expand the educational experiences for students varies, as does the interest and engagement of school administrators”
(Mehsikomer, 2005: 20). While credit does need to be given to this agenda for acknowledging the relevant barriers associated with this plan, the strategies that have been proposed to counter these obstacles have placed an even larger pressure on the individual teacher and their professional responsibilities. Suggestions such as creating staff development teams and an Education Technology Advisory Committee (ETAC), building partnerships with postsecondary institutions for teacher prep and continuing education programs, building in time for teachers to attend these programs, and providing self-assessments have all been received as steps in the right direction. However with financial and staffing limitations as well as no currently existing state standard for technology integration or techno-literacy skills for teachers and administrators, putting this plan in action is easier said than done, but the MDE does acknowledge these obstacles and are working towards progressive solutions (Mehsikomer 2005).

In January of 2007, the MDE put together the 2008-2011 Technology Planning Guide for Minnesota School Districts, Charter Schools, Nonpublic Schools, and Public Libraries. This four-year technology plan is a required part of larger federal subsidy programs, such as E-Rate and the No Child Left Behind Act. Based on several of these federal requirements the vision of this plan focuses on assessing the needs of particular schools and their student populous. What is interesting is the ideology that these initiatives are promoting, as according to the introduction of this plan, “Current education
literature points out that in the 21st Century, reform movements cannot be fulfilled without technology” (Mehsikomer, 2007: 2).

**The Administration~**

To gain a different perspective from others within the educational field but not necessarily within the classroom, interviews were conducted with individuals serving in different administrative positions; all of which offered different insights into their view for the current as well as future state of educational technology and the subsequent role of the educator. The four interviews included two school board officials, the principal of a private parochial high school, and the MDE’s Division of School Improvement, Senior Technology Planner/Director Mary Mehsikomer. It should be noted that each interview conducted revolved around the same grouping of questions in order to insure consistency. From the perspectives of the individual administrators interviewed for this project, one theme became clear: they want more technology.

I began each interview by asking each what they determined to be the greatest influence on why Minnesota high schools have began to incorporate more technology into the classroom. Perhaps due to continued pressures from the corporate world, to which many of these schools have financial relationships, or due to societal pressures, administrators are heavily pushing for more technology. All four expressed similar opinions that the social and economic world has had a definite influence as well as the
fact that technology is now so common and available. There was some variation however, in precisely who or what was causing this influence. One believed it to be the global economy, another, the cultural shift and more specifically, postsecondary schools, and another, the technology vendors themselves. It was suggested that one important factor in this equation was the business sector. As school board member Mrs. Polly Skaja-Bell insisted, “To find out what is being used, where the corporate world is going and how this field wants kids to be educated. This also generates funding and partnerships between schools and businesses” (Skaja-Bell interview 2008). Nevertheless, all agreed that technology is important because of the current role it has the world, regardless of whether this simply be a present fad or more probably, a lasting standard. “The world is flat and we are finding commonalities everywhere; the only way for students to keep up, is to understand the latest and greatest trends, and furthermore, bring it to the class room” (Skaja-Bell interview 2008). Yet, as MDE Technology Planner Mary Mehsikomer recommends, it is important to not allow technology, or the outside world, to dictate courses or curriculum (Mehsikomer 2008). Additionally, all four interviewees saw numerous benefits to using educational technology, including offering greater access to information as well as the ability to connect and communicate with others around the world. Some drawbacks of technology that were elicited alluded to there still being unreliability with some of the hardware and software that technology uses resulting in a misinterpretation of these tools by both students and teachers. More
telling however, were the larger social implications that interestingly both school board officials relayed. As Mr. Les Green suggested, “There is a lack of human interaction and a loss of respect for knowledge occurring. The human touch and the sense of physically hearing a voice are important. People make the impact in teaching. We don’t hire computers, we hire people!” (Green interview 2008). Mrs. Skaja-Bell offered concurring arguments by expressing her concern for how students are seemingly forgetting about reading books and other basic learning fundamentals. “There is a need for more activity for the brain; Sometime technology seemingly replaces this” (Skaja-Bell interview 2008).

The next part of the interview focused on the availability of these educational technologies within the classroom and what requirements, if any, existed for educators. Almost all schools in the state of Minnesota apply for grants and funding individually or through their districts consortium. However, with each school individually determining its own level of technological implementation, a large discrepancy between schools may result. Mrs. Mehsikomer clarified that educational decisions are made under local and district control and therefore it makes it hard to move all schools and programs in the same direction (Mehsikomer interview 2008). Regardless, almost every one of the individuals interviewed echoed the opinion that the updates are not frequent enough and more importantly, there needs to be better hiring practices and training for teachers. Technology Planner Mehsikomer reported that the MDE plans for updates every 3-8 years, however most districts tend to fall towards the latter end of that time frame,
typically 5-6 years and with recycled replacements not necessarily new updates (Mehsikomer interview 2008). Without adequate funding, these updates just don’t happen. As school board official Green offered, “These updates are simply bells and whistles and that’s not technology” (Green interview 2008).

There was also concern regarding the lack of requirements and standards for teachers to use educational technology within their methods, whether updated or not. School board representative Mrs. Bell-Skaja saw this as being more a symptom of laziness than necessarily technophobia (being afraid of using new technology). Principal Lynn Grewing claimed that there is no set standard but the push from administration and curriculum directors is strong. Grewing also sees Cathedral, a private parochial high school, as being less than 5 years away from being textbook free and all materials online or on CD/DVD. “We’re moving toward the elimination of textbooks. Text on screens is much more exciting and interactive” (Grewing interview 2008). Overall, she saw the attitude from teachers toward educational technology as being mixed. Having a mostly veteran staff has resulted in frustration, as some teachers struggle with implementing new technology. As Mrs. Grewing states, the time has come that they must (Grewing interview 2008).

This fed into the deeper discussion as to the present-day role of the teacher in the classroom. Technology Planner Mehsikomer views this change as structural. Instead of standing in front of a class and lecturing, the teacher is now more of a facilitator, and
consequently, students are more invested and interaction occurs (Mehsikomer interview 2008). Principal Grewing believes this change has occurred not necessarily as a result of increased technology, but rather because of the changing student. “Students need to be engaged and actively involved; they are so tech-savvy” (Grewing interview 2008). Grewing espouses her argument by mentioning that research has shown that individuals learn better from interaction. Conversely, the two school board officials saw there being loss of teacher control in some instants where technology is concerned. “Teachers may become lazy and reliant on students sitting in class in front of a computer. Most teachers still don’t know these technologies well enough yet to use effectively and thus it’s simply a way to keep students busy” (Skaja-Bell interview 2008). Mr. Green offered similar comments when he stated, “Some educators have lost their way when they have used too much technology. Most have realized that the important tool is the teacher and their relationship with the student. Technology is too enhance the role of the teacher, not make teaching more exciting” (Green interview 2008).

All four administrators openly expressed numerous tangible benefits of educational technology for both students and teachers. There was consensus that technology engages the students to a greater degree and offers limitless opportunities and resources. For teachers, technology improves communication, makes educators jobs easier, more convenient, and generally enhances education. Still I speculated, if technology was so great and with so much to offer, what was being lost in place of these
tools? While Principal Grewing saw little to nothing actually being displaced, both school board officials tendered different responses. Mrs. Skaja-Bell saw there being a shift in the face-to-face communications that occurs among not only the teachers and students but also students to students as well. Socialization skills have diminished to some degree, and things like books, art, and music, as we once knew it, have been lost (Skaja-Bell interview 2008). This reliance on technology has resulted in miscommunication and misunderstanding at times. Yet, she optimistically hopes that maybe this will improve since people are choosing to communicate now in other ways (i.e. via e-mail or cell phones) because of convenience, whereas before no communication would have occurred. Mr. Green makes an alternative case for what he believes has been lost. “The ‘personality’, the teacher as a human quality and the ability of that teacher to create a presence has been lost. What we are seeing is the loss of the personal touch and while some would argue that technology creates greater interaction for students in practical application, it is diminishing the interaction between students and teachers in the class” (Green interview 2008). Green went on to remark that he has witnessed a change in the skills that were once valued in teachers, that art and those unique techniques that good teachers possess in order to gain and maintain the attention of a class.

As with any transition, there are potential obstacles and unforeseen problems that may arise. The role of the administrator is to anticipate these situations and help assuage
them. Some of the challenges expressed included those previously mentioned as well as media literacy issues for both students and teachers and hardware limitations due to patchwork systems and servers carrying too much data.

The final question asked to each participant was a larger overarching question regarding the pedagogic value of electronic/media learning as opposed to traditional methods of instruction. All of the interviewees regarded electronic/media learning (i.e. educational technology) as a great fit for schools and that it, combined with knowledgeable educators’, can produce effective teaching and successful students. Mehsikomer believes that technology expands the classroom into the real world and this exposure to media on a daily basis only enhances student knowledge. “Greater engagement equals better achievement” (Mehsikomer interview 2008). The others agreed, suggesting that technology helps act as a motivating factor to a different generation of students and the unlimited access to resources is incalculable.

What was interesting were the final concluding comments from the different participants whereby each seemed to philosophize their perspectives towards the larger whole. Principal Grewing sees this evolution as a sign of the times and she welcomes this future. School board member Skaja-Bell articulated her views by reaffirming that “It’s the teacher not the technology. Technology is a resource, but even without technology there is a need for qualified teachers” (Skaja-Bell interview 2008). Finally, school board official Mr. Green provided perhaps the strongest opinion when he asserted
that “Today, 30 - 40 % of information can be gotten from technology, but 60% needs to be explained by teachers, the same as books. Teachers interpret and help us understand what that 30 – 40 % means” (Green interview 2008). Green goes on to say that the responsibility does not land solely on the shoulders of our schools and the teachers, but that “Parents are really responsible for education. We’ve delegated this responsibility to ‘second parents’ (teachers), but now want to delegate this responsibility to technology as well. There is a danger in doing this, we just haven’t experienced it yet” (Green interview 2008).

In reviewing the interviews conducted with these administrators, some general conclusions can be deduced. The school board officials and one principal interviewed all offered similar challenges. There were issues regarding accessibility and staying current. There were concerns about teachers’ attitudes and approaches, which calls for a need to mandate some sort of teacher training and subsequent requirements for implementation in class. While the individuals interviewed for this study did champion for more technology in the classroom, there was still variation among their overall attitudes, yet all presented an awareness of the dangers and potential implications that exist.
Social Pressures –

*Popular culture joins educational critics in depicting ways in which history and social studies teachers turn their content into a dry compilation of names, dates, and events. In this view, social studies classes often look like Ben Stein’s now-famous rhetorical economics recitation in the movie Ferris Bueller’s Day Off.*

Ashburn & Floden, 2006: 89

It has been established in the previous chapter that there are significant pressures already built into the educational system. However, what has not been discussed are those additional pressures that stem from outside the system itself. The social pressures, while typically more subtle and individually offered, are often the most significant and influential in determining change in the procedures and policies that impact the education system. Parents and students have the loudest voice in this discussion, yet it is important to also recognize the role of the school board, which functions on two levels; both as an elected voice for the parents and students, as well as a part of the institutional system as discussed earlier.

We live in a culture that is saturated with technology and media and today’s teachers are under enormous pressure today to satisfy this ongoing struggle of incorporating this technology into their classroom and teaching practices. This can be
especially difficult seeing as how technology and the literacy for understanding it are constantly changing. Unlike other professions that may have evolved over time but preserve a foundational core, education remains in a dynamic state, adhering to the influences and pressures of society and the demands to stay progressive. Maintaining a level of competency and a willingness to develop is crucial for educators to even sustain the status quo and their jobs (Lankshear & Snyder 2000).

Our current society has continued to progress in terms of not only the amount of technology that we utilize in our everyday activities, but also our growing reliance on them. We are seeing this standard practice beginning to influence how we evaluate social status and achievement. Culturally, there is pressure for more active ‘doing’ of history within the learning environment rather than simply the traditional transmission of details such as names, facts and dates. Consequently, teachers and educators are being urged to use these technologies within the classroom to promote technology as a function of society and prepare students for the adult world. David Bolt and Ray Crawford, in their book entitled Digital Divide, make the argument that educators already deal with so many institutional challenges that expanding on those responsibilities is somewhat irresponsible toward the larger society. Social expectations are requiring teachers to do even more than is already asked of them under such conditions (Bolt & Crawford 2000). We are also asking educators to take on the additional responsibility of teaching our children with new technologies that often the greater society does not understand. Yet, society
expects these same teachers to not only learn but also instruct our children via these technologies (Bolt & Crawford 2000). This is problematic for many teachers who already struggle with trying to maintain some structural balance in terms of mediating the different ability and comprehension levels of their students. Now teachers are also being required to evaluate a student’s savvy with technology. As mentioned earlier, this creates an unequal playing field for many students in terms of their realistic access to these technologies potentially resulting in an unfair advantage for some and further divisions among adolescent students. Studies have already shown that degrees of affluence, socioeconomic differences, as well as the parent’s educational backgrounds play a significant part in determining how much and in what form their children are exposed to new technologies (Jackson et al. 2006). This notion leads to what many have referred to as the technophilic versus technophobic paradox. To have to negotiate these differences, when the materials and tools are already something new for the educators themselves, is an additional burden.

**Parental Pressure**

As alluded to earlier, there is this notion that children must learn how to use technology in order to be competitive and successful later in life and parents are often the ones that bolster these ideals. “Certainly many of the parents of upper- and middle-class
children who used computers at school were themselves simultaneously encountering computers and the Internet at work” (Goldfarb, 2002: 9). Parents see technology as a sign of advancement and modernity, and interpret using and understanding technology as the key for success later on. These social attitudes only reinforce this attitude of seeing technology as an identifier of progress and aptitude. However, fostering such perspectives and adopting practices of reluctant implementation does have potential dangers. We live in a media and technologically saturated society. In a period of such change and transition, where new emerging open source resources are available and where anyone can produce and contribute collective content (i.e. Wikipedia, YouTube, blogs, and numerous social networking sites), there is an unassigned responsibility to critically evaluate the benefits and risks involved with these resources and recognize the potential exposure to other content that children may experience.

Adding to this dilemma is the fact that by asking for more technology within the classroom, the displacement of other activities within schools is occurring in order to cut the costs for more technology. “Given a choice, then, parents certainly need to examine whether cutting programs to put in technology which does not have a demonstrated and documented effectiveness in learning and may, in fact, have a negative effect on children’s long-term development, is worth the short-term peace of mind brought blindly believing that this technology is ‘the answer’ ” (Bolt & Crawford, 2000: 45). While studies regarding the effectiveness of technological learning have been done and have
shown mixed results, the question is still important to recognize. Ultimately, it is the social aspects and cultural attitudes that are influencing our educational structures. How we recognize this form of learning in terms of future social success is typically defined by the corporate world.

**Corporate Pressure~**

> *It is as if corporate executives have looked at technology, seen there a force they feel they understand, and moved to try to apply that to an arena they view as problematic – the schools.*

Stephen Kerr, 1996: 224

The corporate world *does* influence our education system. Socially, we recognize that we are educating students for potential placement in this capitalist culture and thus need to accept the current trends of society. In many regards, corporate influence is not only seen in educational curriculum, but today’s schools are being used as another marketplace for consumer economy (Bolt & Crawford 2000). This also then begs the question “Are these new technologies serving educators and enabling a better and broader education, or are they seen by the business world as a way to train a better “class” of worker?” (Bolt & Crawford, 2000: 43). The potential danger in allowing for this corporate influence is the realization that should our educational system become reliant on these new technologies for learning, we may no longer be discussing education using
the same terms as we now define it. “If business gains too much influence over the curriculum, the schools can become a kind of corporate training center – largely at taxpayer expense…This is one reason that school traditionalists push for broad liberal-arts curricula, which they feel develop students’ values and intellect, instead of focusing on today’s idea about what tomorrow’s jobs will be” (Oppenheimer, 1997: 13). For many the debate then becomes one of subject learning and course content. If we can modify the resources and materials that our students are learning from within the classroom, we can alleviate this potential problem of corporate deluge. What this discussion often overlooks is what we have yet to realize about educational technology. It may in fact provide limitless sources and information, but the problem comes in mistaking information for knowledge, reflection, and wisdom (Kerr 1996), something that no educational technology can yet offer.

There are other concerns as well regarding the corporate world having too much influence over our educational systems. Another of those concerns being the type of learning environment we are consequently producing. In a society where it is becoming commonplace to walk into a business office only to see rows of employees sitting in cubicles and staring at computer screens for hours a day, it begs the question, is this what we want to prepare our students for? As Todd Oppenheimer stated so succinctly, “Computers encourage social isolation” (Oppenheimer, 1997: 17). Do we really want to
encourage more isolation? It was my understanding that technology is meant to encourage communication not segregate it.

Evolution occurs in any culture and in almost every field. Consequently, standards change and expectations are raised. Society now demands that students learn how to use technology in order to be able to fully participate within not only the current society, but the future one as well. While social pressures are much harder to measure and there are no statistics available to accurately measuring their influence, this pressure is palpable. Nevertheless, while the proposed intent of most educational technology is to close the educational gap that exists between schools and students, with such disparity between schools and available resources, this intent could unintentional create more of a divide between the haves and the have-nots.

Culturally, we have found a new way to segregate. However, I would argue that this is in fact the opposite of what technology is intended to do and is actually doing. Yet why are we placing the blame on our teachers and educators? Why has it become their responsibility to integrate these new social trends into an educational format? There seems to be some disconnect between the responsibility of the teacher, to impart knowledge, and the greater social responsibility that we have, to manage cultural shifts.
Professional Pressures -

A final notable influence for educators comes from those professional pressures that supplement their teaching styles. While seemingly less obvious in comparison to the other pressures examined, there is still this internal challenge among many educators to maintain some sense of modernity in their teaching. Staying up-to-date with current technology is something that individuals in all professions feel both professionally as well as personally. Yet in a field that demands the use of such tools for the development of our youth, these pressures can become increasing greater.

There are pressures internally between faculty officials as well. Teachers are beginning to feel the need for continuing education in order to keep pace with others in their field or area of concentration. This influence is even occurring at the individual school level, where there is a noticeable ‘domino effect’ in terms of technology use among educators. In regards to exemplary use of technology (specifically computers) in teaching, it has been found that most effective teachers often come from schools where many of their peers are implementing these resources as well. This is however, a result of heavy investments made by schools or districts in staff development and on-site support, which isn’t the norm in most cases (Becker 2000).

Educational technology use has also created other issues for educators, including ageism, technophobia, accessibility issues, and concerns about choosing the right
technologies and being as effective. There are also challenges regarding time, both during the class period, as well as time limitations over the duration of the course. Teachers are required to cover specific, and typically large, amounts of material throughout a semester or year. If a teacher is to attempt to include a given technology or program into the course content without some sort of knowledge or guarantee this will be effective both academically and timely, there is the chance that the class will not complete all of the mandatory material. This is a risk that many educators are not willing to take.

All of these concerns lead to greater pressure on educators needing to justify themselves and their methods when new tools and resources are being designed to do the same at a suggestively faster and more successful rate. These added pressures often involve extra planning and more time for understanding and learning these technologies, incidentally what these technologies are proposed to help alleviate. Additionally, unlike with textbooks and other edited for content materials, nowadays with such endless resources available, teachers are finding themselves responsible for discriminating between those resources to determine what is credible and beneficial and what is not. These notions will be examined in further detail in the next section.
Other Challenges and Concerns -

Amidst all of the aforementioned pressures that individual educators may encounter regarding educational technologies, there are also numerous challenges and other concerns that have been exposed. One of those challenges questions how an educator evaluates both the technology itself as well as the student who uses this technology.

The Educause association, which produces a periodic review of technology in education, categorized a number of these instructional teaching challenges in an article by Patricia McGee and Veronica Diaz, entitled “Wikis and Podcasts and Blogs! Oh My! What is a Faculty Member Supposed to Do?” (McGee & Diaz 2007). Even though the journal focuses primarily on issues pertaining to instruction in higher education, the challenges still seem applicable for secondary educators as well. The instructional challenges that were defined included:

- *The technology-adoption cycle.* It takes most educators several applications to learn how to effectively use a given technology, and most prefer to only incorporate only one at a time. In addition, with such a range of tools available but the lack of information regarding many of them, along with the exaggerated amounts of time that these tools may take before any beneficial outcomes, these act as additional “de-motivators” for many teachers.
• **Lack of integrated technology.** While educators have begun to use some form of course management system, there are also many tools that still have yet to be integrated into the larger system. The result of this is extra upkeep, management and a greater amount of invested time on the behalf of the educator; something that should not be necessary.

• **Learners’ changing expectations.** Essentially not all students learn the same or are motivated by the same sorts of techniques. There are individual preferences in applications as well as the amount of inclusion. For this reason, educators repeatedly encounter frustration and disillusionment from students as they attempt to find suitable resources for their specific class and the students that compose it.

• **Institutional changes to technology commitments.** Realistically, teachers individually adapt and integrate new methods and technologies at different rates, and typically before the school as a whole makes these transitions. Without proper funding and institutional support, and most importantly, a commitment to these shifts, incorporating innovative technology into their practices becomes a great risk for teachers in such an unsure situation (McGee & Diaz, 2007: 30, 32).

The challenges that *Educause* presents have been part of the overall debate regarding educational technology for a while now. These are some of the same concerns that many of the educators that participated in this project have expressed. As one surveyed teacher stated when discussing the pressure of finding sufficient time, “It’s hard for me to find the time to learn how to use some of the technology I would like to use.” Other educators spoke about the task of having to validate student materials and sources. “Student access to both credible and un-credible source material. It used to be finding information was the difficult part; now information overload is a problem and try to cull through all the material is the problem.”
In addition to challenges regarding accessibility, time, and selecting appropriate materials/programs, teachers have also voiced dilemmas with scheduling time for computer labs and AV cart use, and making sure that technology is actually available. Sometimes this predicament can even depend on which classroom is being used and the size of the class, especially with larger classes. Additionally, some responses elicited there being problems with other faculty officials, not enough hardware and software, or when the equipment is available, it is often unreliable or poorly constructed. Plus, some are finding that there are not a lot of curriculum packages out there that offer technology as a main source. A survey respondent claimed that

Lack of funding makes it necessary to teach the students how to use the most simple applications (excel, word, PowerPoint) because the basic computer classes have been cut due to budget issues. Having to spend more time on these basic applications takes away from being able to use more complex applications. There is simply not enough time to do all of this and complete curriculum requirements.

Another pressure facing teachers, eluded to earlier in the social pressures section, comes from the expectations of their students. As one teacher suggested, “With today’s media and video games it seems as though students expect to be taught in innovated ways. They expect to have hands-on and visual activities to help them comprehend topics. The students know the technology is out there, so they know learning can take place in multiple ways.” Yet while many educators believe that most of their students are incredibly ‘tech-savvy’ when it comes to using these tools, some teachers are surprised when students have even the simplest difficulties with technology.
“Often I assume they know more about technology than they really do… Most often they require help interpreting and finding information from the Internet” claimed one survey participant. Another stated,

Sometimes they have a hard time accessing a site and if it doesn’t work the first time, they can “give up”. Sometimes the site itself, if it’s an interactive site for example, will be slow or won’t work somehow and they’ll be frustrated. They don’t trouble-shoot very well. They can use sites like MySpace and Facebook easily, but throw a curveball at them and they’re stuck.

Even with these expectations in place, students are still misusing these technologies and keeping students on task is a constant challenge for most educators. “There is a propensity to use Wikipedia and other non-peer-reviewed sources for information that can be at times unreliable … Students are also tempted to visit game websites and minimize the screen when teachers approach, increasing some on-task behavior, but overall, this is a minimal problem”, this from a teacher survey participant.

The added responsibility of needing to continually monitor students not only for their activities online but also for the resources of which they are using comes at the expense of other class activities and teaching opportunities.

The longitudinal problem with this changing standard in learning is that students are becoming unfamiliar with the basics. “It’s hard to get students to read and simply listen and participate in the classroom lectures.” As we continue to progress in this transition towards more digital and technological approaches to education, the propensity to ignore traditional methods of teaching are being cast about the wayside and the
fundamentals are being lost. One teacher even suggested, “More problems with technology occur as an excuse to not participate in an activity because “my computer crashed at home.” There is the realization by many teachers that educational technology is simply a new and different way of presenting material, “One thing replaces another, for better or for worse.”

Ultimately, it should be reiterated that unlike other forms of media technology, educational technology is not meant to simply appease students in a manner that is familiar and fun to them. Educational technology is meant to motivate further education and help to develop an understanding about a given subject.

The next chapter highlights some of the pressures and challenges introduced in this chapter, but explores these issues through a more critical and theoretical lens.
Chapter 3. Critique, Theory and Analysis: “Making the Grade”

What kind of a culture are we developing if people have to meet its most powerful ideas through machines rather than through people? If people – that is, teachers – consistently work in such a way that they block access to these ideas, should we not be looking at how teachers work rather than selling them as prosthesis?

John Davy, 1985: 16

This idea is just one of the many critiques that have arisen as a result of this growing dilemma that seems to be further dividing public opinion as more technology is being introduced into the field of education. While much of the scholarly analysis about educational technology has favored its introduction into the classroom and few question the overall intent and value of these resources, some have questioned the degree to which these tools should be integrated.

The focus of education can been seen as modeling itself on the current trends of society and corporate approach. For this reason, due to the state of the modern society and the saturation that exists within it, there is a constant push for more varied and innovative learning with technology in the classroom. Some within the education field see this movement as inevitable and teachers need to accept it by either joining the movement or stepping aside. “We must find ways to utilize these powerful tools to further our current educational objectives and to develop new approaches appropriate to a world increasingly dependent on electronic devices. We must make them an integral part
of the classes we teach” (Schulkin, 1998: 232). This collective attitude became somewhat of a social movement back in 1996, when President at the time Bill Clinton declared “We know, purely and simply, that every single child must have access to a computer, must understand it, must have access to good software and good teachers and to the Internet, so that every person will have the opportunity to make the most of his or her own life” (Goldfarb, 2002: 8). It is understandable as to why there has been such advocacy for educational technology because without it, according to Clinton, nobody would be able to do anything with his or her life.

Ivor Goodson and company re-introduced the idea of ‘technology refusal”, originally identified by Steven Hodas in 1993, in the 2002 book titled, *Cyber Spaces / Social Places: Culture clash in Computerized Classrooms*. The idea of technological refusal suggests that much of the advocating for new technologies in education stems from an apparent criticism of the current education standards and teachers performances in general. The thought is that technology can not only serve as a supporting resource to enhance learning and potentially increase understanding, but also as a supplemental guide for educators to follow to ensure consistency and a standard of success (Goodson et al. 2002). However, this argument fails to consider the individual capacity of the educator and his/her value within the classroom itself. “Of course, computers can be programmed to do some of the things that teachers do – for example, give information, exercises, and tests – but they cannot deal with unexpected questions or unprogrammed
misunderstanding. Human educators – instructors, trainers, tutors – are intuitively able to do this rather well, but intuition cannot, by definition, be programmed” (Simpson, 1985: 85-6). This speaks to another often forgotten aspect of learning, the human element. The ways in teachers which respond and react to their students is instinctive and with emotion. This production of cognitive growth is a fundamental objective of the education system and crucial for a child’s socialization process; even more importantly, it is an element of education that technology cannot offer. As Simpson later asserts, “Education is the development of people, and people are not machines, or even machinelike” (Simpson, 1985: 84).

Goodson and company also present other important questions and ‘paradoxes’, including the possibility of subtracting valuable content from education to be replaced with technology, the limitations and obstacles of using technology, and the need for regulation and parameters (Goodson et al. 2002). One of the larger questions not being asked however is: Is it logical or rational to be implementing these technologies into such a stable, structured environment? Technology is advancing much faster than laws, standards, and regulations can control and oversee. Thus, it stands to reason that while socially we may independently incorporate these technologies into our lives and individually negotiate the potential risks and rewards involved, it is irresponsible of us to place this same responsibility on our educators to unconsciously advocate these technologies upon our youth.
Still, what do these innovative technologies really do and what do they contribute to learning? Technologies such as computer mediated communication (CMC), hypertext, visual and electronic learning and a slue of others, are all intended to provide faster and more effective ways of learning to the student with the Internet considered THE endless resource for information. However there are dangers in this passive acceptance. There are concerns about the over complexity of the content that is available through some of this software. “If one was in fact to move from working as a direct instructor to being more of a mentor and guide, then how was one to learn how to do that, and how was one to assure that one’s students were in fact progressing as they should and now using their own (often superior) ability with technology to create merely a Potemkin village of progress?” (Kerr, 1996: 13). (*A Potemkin village refers to something that may appear to be elaborate and impressive but in fact, actually lacks substance and credibility; this according to the American Heritage College dictionary).

There have always been questions regarding credibility, authenticity and value when it comes to educational resources, but often these concerns have been ignored because of the vast potential possibilities that technologies brings with it. However, it is time that socially we start acknowledging the hidden consequences that these tools may present. “New technologies make it possible to edit, alter, combine, and otherwise manipulate images, blurring the distinctions between ‘authentic’ and ‘fake’ … New technologies may lead to inadvertent or unintentional messages, emphases, or
interpretations that distort the purpose or meaning of the information” (Brunner & Tally, 1999: 10, 12). This being said, with so much material and information now available through technology, and much of it lacking assured integrity, the responsibility of teachers and students now becomes one of not only interpretation of the materials, but also discrimination between what is and is not reliable. For students at this level, that might be too much to ask. “There is a hidden pedagogical danger, then, in pushing students to become more active and do the work of historians. As more teachers follow the credo of ‘student as workers,’ we might be fooling ourselves, confusing the outward trappings of a disciplinary activity such as reading primary sources with the harder-to-see thinking that defines the activity in a disciplinary community” (Ashburn & Floden, 2006: 101). The traditional textbook never presented this problem within education. “Rather, textbook language covered up the authors’ uncertainties, interpretations, or leaps to conclusions. This reinforces students’ habits of reading for facts instead of reading for interpretations or to understand the mind of the author” (Ashburn & Floden, 2006: 102). Hereby creating a stable and credible learning environment for both students and teachers, and one that allows for introspective discourse and analysis without questionable content jeopardizing student interpretation. An interesting side note to this, as one high school teacher found from his own experiences, “ … high school and beginning college students are more comfortable dealing with secondary sources as opposed to primary sources, with narrative as opposed to statistical sources. Using their
frustration as an excuse, these students quickly moved away from reliance on web-based primary sources” (Schulkin, 1998: 244). This demonstrates that it is not just an attitude of rebellion amongst teacher, but often students as well.

There are those who argue that traditional forms of education, like the textbook, the pen and paper, the globe, have all become outdated and tedious (White 1983). The idea of taking notes and writing by hand, of plotting points on a graph, even manually doing science projects, are all concepts of the past thanks to new educational technology (Roschelle et al. 2001). I’d argue that there is some inherent value in performing these skills manually without technology, the same way that we still do math problems, learn how to spell and learn our multiplication tables. Ultimately, it is not the purpose of education to placate students and their desires for something fun.

In spite of this, many educators still assert that they see new educational technology as beneficial in the right capacity and application, but also feel that some of the technology being implemented now is simply conveying the same functions as traditional methods but in a different, seemingly unnecessary manner. Christopher Knapper presented his own evaluation of instructional technology by looking at the history of education and how it has been evaluated in the past. One of Knapper’s strongest arguments focuses on the formative vs. summative evaluation process, in which there is debate between those who focus on the end product versus those who focus on improving the structural process itself (Knapper 1980). Presumably, both processes
appear relevant and justified, but they look at two different variables. We need to focus on the summative evaluation, which categorizes the actual method of teaching and its validity in terms of promoting that final overall product, the student. Knapper maintains that learning occurs when students can ‘transfer’ and apply what they have learned into the ‘real world’. He promotes some use of technology within the classroom since technology is becoming a staple the real world and how it functions (Knapper 1980). However, what is missing from education evaluations is set criteria for all educators. With new integration of new media, teachers need updated forms of evaluation and assessment in terms of the resources being used. “They can judge the quality of the content of a video or a CD-ROM or a web-site, but not the quality of its structure” (Brunner & Tally, 1999: 9). There is a need for a basic standard of criteria that assists teachers in being able to assist students with judiciously segregating information and using it in constructive and logical ways as well as to ensure that students maintain subject focus and not waste time exploring the wrong things. Aims and objectives need to be more defined and presented clearly for both teachers and students in order to establish a standard for evaluation. Need for specifying goals and the advantages that this would bring to educators in terms of providing them with a standard agreed upon set of criteria (Knapper 1980).

Maintaining student attention has always been a challenge for educators even before technology was introduced into the picture. Many teachers state that their
incorporation of technology into the classroom is influenced by them wanting to create a fun and innovative experience for their students. To move away from the simple imparting of facts and details to an interactive experience that places the onus on the student. While in theory this appears to be a great use of educational technology, upon closer inspection, greater unintended consequences resulted.

In reviewing one teacher’s personal story about using new media in his high school history class, educator Carl Schulkin proclaims great satisfaction in his experience and encourages other to adopt this technology as well. Schulkin provides excerpt follow-up comments from the students to support his enthusiasm for new media. However, what is interesting to note, is that of the students comments that were highlighted, each recognized that the most interesting aspect of the projects was the technology and learning how to use it, rather than the focused subject itself.

For one example, one of the students who responded most enthusiastically to New Media began his evaluation by stating: ‘The most interesting and valuable skill I learned during this semester was the use of the computer. I felt it was neat how you incorporated the computer into most of our projects’. A second student, equally enthusiastic about the use of New Media, expressed almost identical sentiments. ‘What I found to be most valuable for further success in this course and classes to come, ‘ she wrote, ‘was the work with the Internet (Schulkin, 1998: 235).

While this could be viewed as promoting further educational technology into classroom lessons, it can also be seen as detracting from the course content and put to question what
was intended to be learned as opposed to what actually was. After all, what is actually being taught here, a social studies course or a lesson in computer learning?

_The Computer in Education: A Critical Perspective_, an edited collection of perspectives from educators and administrators in the field, concedes a degree of practical realism in terms of educational technology. We are part of a technology revolution, yet few are stopping to critique this movement for fear of being outcast or left behind (Sloan 1985). Although somewhat outdated, the contributing authors recognize that technology is present and will continue to be a mainstay in term of education and development. However, what is also emphasized is the importance of teachers and books in the classroom as well, and that this appreciation for traditional teaching must not be lost. While technology may offer unexplored potential in resources and access to even more materials, there is also the reluctance of pushing education in a direction where we are simply developing child robots, to work mechanically and see things only objectively not subjectively (Sloan 1985). There has been a shift in society as to what we value in our youth and their development; from a concern for emotional and pro-social, imaginative capacities, to early development, analytical reasoning and more functional skills that will make the child more successful. “Perhaps more should be done with regard to communication and collaborative work. If we are in fact less concerned now about mastery of material, and more concerned about teaching children how to think about the world, then we should rethink carefully in what ways computers might redefine
what children do in school” (Kerr, 1996: 14). Meanwhile, despite the support for more technology, “Studies overwhelmingly suggest that computer-based technology is only one element in what must be a coordinated approach to improving curriculum, pedagogy, assessment, teacher development, and other aspects of school structures” (Roschelle et al., 2001: 3). Thereby underpinning the need for reevaluation prior to implementation.

Finally, there is the issue of cost in relation to benefit and effectiveness. In a study done by Keltner and Ross examining the costs of school based educational technology programs, the questions about how to fund these advancements and how to keep the playing field somewhat level were posed. The costs of new technology include funding equipment and software, infrastructure (the rewiring of classrooms and buildings), staff development (including training and continuing education courses), personal costs (extra IT positions) and material costs.
Given how quickly technology becomes outdated, the argument can be made that these resources are in fact more costly and time consuming when compared to other forms of educational resources, which thus questions their overall value.

If producing exemplary teaching practices using computers is so expensive, one must ask if it will be worth it. There are other ways for schools to spend money to improve their capacity to develop competent learners and thinkers. For example, they might invest in smaller classes for teachers (but not specifically so that they can use computers), in systematic and ongoing in-service training and supervision (on topics other than computer use), in larger salaries to recruit smarter teachers (who may not particularly like computers), in restructuring to give teachers fewer class hours and more planning time (not specifically for the use of computers, or in innovative print-based curriculum materials. Almost all proposed improvements to educational practice call for similar types of expenditures whether or not computer-based learning approaches are contemplated (Becker, 2000: 290).

Becker’s point is well taken, and there are needed changes and challenges for schools outside of trying to stay up-to-date with the current trends in teaching and technology. Issues concerning greater autonomy and trust for teachers and students, smaller schools and class sizes, flexibility and block scheduling, alternative assessment standards, ongoing faculty development all seem just as essential as ensuring that each classroom has a Whiteboard, and more importantly, a teacher that can use it.

Having critically investigated the different obstacles that teachers encounter through educational technology, some experts within education yield a cautionary
warning to educators that may too quickly jump onto the technology bandwagon. Again as Christopher Knapper advises,

However, before embracing a technology of teaching too hastily and enthusiastically, it is worth reminding ourselves that technology – in learning as elsewhere – is in itself neither good nor bad, and that its effectiveness depends upon the way it is used … Certainly, care should be taken to avoid the technological tail wagging the instructional dog – the implementation of instructional technologies just because they are available and represent the latest innovation, rather than because they will cope most effectively with a particular learning need (Knapper, 1980: 141-2).

This excess of technology use could result in a form of technological somnambulism by which teachers are simply satisfying the wishes of both their students and administration simply because it is trendy. Moving away from structured and content based learning to a more dynamic form of technologically interactive application may result in greater enthusiasm among participants, but the danger in doing so lies in the unreliability and inconsistency of overall subject knowledge. The basics will forever be fundamental to learning because without them, understanding these new tools is impossible. “… teaching solid skills in reading, thinking, listening, and talking; organizing inventive field trips and other rich hands-on experiences; and, of course, building up the nation’s core of knowledgeable, inspiring teachers. These notions are considerably less glamorous than computers are, but their worth is firmly proved though a long history” (Oppenheimer, 1997: 18). What needs to be reemphasized is that education is still about student learning, and while educational technology may supplant some of this learning through
creative and new avenues, the goals must remain constant regardless of the means to achieve them.

There has been some research done regarding the issues set forth throughout the last couple of chapters, and the field research produced by this study does further examine these pressures and challenges through the perspectives of the educators themselves. The following chapter will outline the procedural methodology for this study and the process by which these themes and the greater thesis questions were addressed.
Chapter 4. Methodology: “How to Get from A to Z”

There are always great stories about how one arrives at a given topic or why a certain question is asked. In this case it was through some casual conversations with old high school classmates during my ten-year reunion in Minnesota in late August. I found myself talking with a couple of old friends about their careers. A couple of them mentioned that they were high school teachers in different parts of Minnesota, some having been in the field for five or more years. What was interesting however was hearing their perspectives about how school and simply education in general had changed since we were there only 10 years earlier. Their comments about the challenges that teachers today face and the building pressures that have arisen, even over the last couple of years, especially in regards to new methods of teaching and the strategies that some schools were implementing. All of this prompted further curiosity. Had that much really changed over a decade?

Nevertheless, it wasn’t until the following morning when I was reliving the night’s events with my mother, a kindergarten teacher and whom ironically had had most my classmates as well as myself as a student at some point, that the constructed theme for this project actually began to take shape. Throughout the conversation she shared with me stories about her students and how she has begun to use more video and computer technology in her teaching, a somewhat surreal experience for someone in her 36th year
of teaching. The fact that she was now teaching ‘home row’ (the base row for typing on a computer) to her kindergarten students, a skill that I didn’t learn until late in middle school was also surprising. She further commented on how handwriting and cursive seem to be a thing of the past and how new media and technology seem to be saturating her students’ lives and these were kindergarteners. We talked about issues such as spelling, and how computer tools simply correct these mistakes. We discussed the social relationship between the teacher and student and how communication has changed. This prompted other conversations with other teaching friends in Minnesota. I began to recognize a common thread. Technology had a very real presence within the classroom, but I didn’t necessarily understand how or why.

The methodology for the purpose of this project involves a multi-method approach. This chapter will illustrate in detail how my primary research was conducted, collected and analyzed through these three elements and what was intended to be accomplished in doing so.

**Why Minnesota -**

So why Minnesota? Having been a ‘product’ of the Minnesota education system, there was an increased motivation to investigate what was happening within this state system and furthermore, what was influencing this change in teaching amongst my family and friends within the field.
The state of Minnesota itself is continually recognized as being a national leader in terms of academic student success and educational standards; typically ranking close to the top nationally in student standardized test scores and graduation rates. As a barometer for educational aptitude, Minnesota has also been regarded as consistently stable; year in and year out producing strong standardized test scores and exceptional graduation rates. In fact, according to the National Center for Public Policy and Higher Education (2002), Minnesota ranked 4th out of 50 states in the proportion of high school graduates with scores in the top 20% nationally on either the ACT or SAT exams (Parents United for Public Schools 2008). Minnesota also ranked 8th overall nationally in graduation rates among all students at 79% (Parents United for Public Schools 2008).

To provide some background statistics as to the composition of the educational system of Minnesota, the Minnesota Department of Education supplies their statistics summary for 2006-2007. It should be noted that while there are different scales and rankings from different organizations, looking at various aspects, this collection of scores seemed to provide the most comprehensive and current assessment available.

The Minnesota Education Statistics Summary for 2006-2007 stated there were 1,881 K-12 public schools, 495 of those are non-public, employing close to 53,000 teachers (52,796). The average years of teaching experience-statewide for those teachers was approximately 14 years, with 2,125 of those teachers being classified as newly licensed or having their first teaching assignment (Minnesota Department of Education
2007). This is particularly significant as it demonstrates there being a good amount of experience and consistency amongst Minnesota teachers, but also potentially a greater generational gap in terms of teaching methods and the use of new educational technology. With such a small number of teachers coming into the field, it could be argued that this might be seen as a double-edged sword of sorts as implementing educational technology into the classrooms of experienced teachers could be difficult.

Additionally, two other statistics stand out when we consider issues of accessibility of new technology among current students. Of the nearly 830,000 enrolled K-12 public school students, over a third of those students (258,018) qualified for Free and Reduced Lunch and (as of October 1, 2006) close to 18,000 more students are categorized as home schooled (Minnesota Department of Education 2007). Already recognizing that there is a statistical discrepancy between many schools in terms of student availability to technology within the classroom, these figures raise further questions about accessibility and consistency with certain educational technologies outside of the classroom as well. It should be acknowledged that not all students have an equal opportunity to engage with these tools outside of the classroom. We are faced with continuing educational divides, a dilemma that technology was intended to correct.

This being said, it is important to acknowledge how this ranks Minnesota nationally when compared to other states. In a study done by the U.S. Chamber of Commerce and the Center for American Progress, as a state, Minnesota also received an
‘A’ grade for academic achievement (2\textsuperscript{nd} overall ranking). However, this same review gave Minnesota a ‘C’ grade (27\textsuperscript{th} rank) for both rigor of standards and for access to technology, even though the state received a ‘B’ mark (28\textsuperscript{th}) for having a “21\textsuperscript{st} Century Teaching Force” (Parents United for Public Schools 2008). This parallels a 2007 study done by Education Week and the Editorial Projects in Education Research Center, which gave Minnesota as a state a ‘C’ grade for access to technology, a ‘B-’ for use of technology, a ‘D’ in terms of capacity to use technology, and an overall grade of ‘C’.

Another analysis, The 2007 State New Economy Index, confirmed this distinction, as Minnesota was ranked 4\textsuperscript{th} in terms of Online Population, where 69\% of the population were considered Internet users, yet still the state ranked 35\textsuperscript{th} overall in having technology in schools (Parents United for Public Schools 2008). The worst score received by the state was a second to last ranking on educational technology in May 2006 (Parents United for Public Schools 2008). Despite the low grades in terms implementing new technology tools, the state still maintains high student academic scores and the educational system is still regarded as being progressive and innovative in using resources and school/teacher methodology.

It has been shown that there is a division between technology use and educational success. A few factors that may be responsible for this disconnect, are issues of educator ability and resource funding and expenditures. Addressing the later issue of finances, Education Week released a Quality Counts 2008 ranking which had Minnesota coming in
22nd nationally in terms of finance equity and spending indicators, and saw the state continuing to slide. The 2004-2005 Revenues and Expenditures for Public Elementary and Secondary Education review ranked Minnesota 15th in per pupil instruction and instruction-related expenditures, which included salaries for teachers, teaching assistants, in-service teacher training, curriculum development and technology.

Thus, financing this push for educational technology has been one area of concern, yet what about the teachers themselves? Are they also to blame for this lack of technological investment? According to the National Commission on Teaching and America’s Future, “Minnesota public school teachers are the most qualified teachers in the country. They rank 1st out of 50 states based on 12 indicators of teacher qualification” (Parents United for Public Schools 2008). However, there is cause for concern, as Minnesota’s student-to-teacher ratio of 16 to 1 was one of the highest in the nation (National Center for Education Statistics), which consequently means that there is less individual attention for students. In fact this number has increased by 5% since 2001. What is lacking is the necessary funding and salaries for these educators, as a Fall 2005 study by the National Education Association found that Minnesota ranks 16th in terms of average teacher salary, and the average beginning teacher salary was much lower than that.

All the same, the irony to this is that while the state may show success in regards of the quality of students its school system is producing, in terms of technology use, the
state often falls well below the national average. This raises an interesting question and potential counter-argument regarding the implementation of educational technology within the classroom. If we are not seeing a positive correlational effect between technology use and student academic achievement, then why is there such a push for further technology and infrastructure within our schools? This became the basis for the field research that was conducted.

**Why social studies/history -**

The subjects of history and social studies were chosen as the focus for this project because of the nature of the courses themselves. Unlike other subjects, such as math and science, history/social studies provides a more static concentration of discourse without much variation in terms of content from one classroom or school to the next. Even as the form of presentation may change, there is a core component to the subject of history/social studies, which remains relatively consistent regardless of where it is taught and by whom. Whether looking at world geography or exploring American history and civilization, the curriculum for this subject has a certain uniformity about it that allows for an expectation of consistency amongst teachers and classrooms. While the resources might become outdated, the informational content within them remains relatively consistent. Thus, whether it is through a textbook, a filmstrip/movie, or even an interactive CD-ROM, the content *should* appear similar, if not the same.
The Lesson Plan -

I have already described how this theme materialized, but developing these curiosities into a tangible research topic was the next challenge. The first step was to take those ideas and noted discussions and brainstorm potential research questions.

Examining a variety of different subjects, I discovered that there was a lot of critical discourse within the area, but it mostly focused on the effects and influences of educational technology in regards to the student, not the educator. The perspective of the teacher seemed to be a somewhat overlooked issue. This could perhaps be due to the social attitudes about the educator as being one simply to educate our youth by whatever means necessary as long as it is successful. Having been a teacher in different capacities over the years, I found this oversight rather interesting as well as somewhat frustrating, thus providing motivation for the focus of this project. I determined that the best way to find out what teachers thought about these educational technologies was to simply ask the teachers themselves. In order to investigate teacher/educator views about technology in the classroom, I employed a multi-method approach that included conducting a survey, in-depth interviews as well as classroom observations.
The Survey -

Design:

In developing the Educational Technology Survey (ETS) for this project, it was understood that the target audience was going to be focused on high school history and social studies teachers in the state of Minnesota. While this project specifically targeted teachers from the state of Minnesota, the questions could have been administered to teachers anywhere. The questions were designed to be standardized and non-leading, but still provoked honest and in-depth responses. The questions examined a variety of topics including professional requirements, issues with class management or incorporation, benefits and drawbacks as well as general overall impressions. Examples of a couple of the survey questions are listed below.

- Have you been required by your school or the district to use educational technology in the classroom and your teaching?

- What would you say, if anything, has been displaced by these educational technologies within your classroom? (What, if anything, has changed as a part of your incorporation of educational technology?)

- To what extent have your teaching styles, preparations, or practices changed, if at all, through either your use or lack of use with these technological tools/resources?
• If you have used or heard of such educational technologies, what are your impressions of those technologies? Have they been beneficial?

For the full survey, see Appendix A (Educational Technology Survey and Consent form).

The survey accounted for general demographic differences including sex, teacher age, highest level of education, location of the school, type of institution (public, private, etc.), number of years in the education field, number of years of those teaching the subject of history or social studies, number of history/social studies classes taught per year on average, size of classroom (i.e. number of students) and average class length (in minutes).

There was a mixture of closed-ended and open-ended questions as well as questions that allowed teachers to scale their responses to a given statement, and a number of conditional response questions. Each question was carefully crafted and reviewed for content to anticipate varying types of responses and to verify whether this was consistent with the intent of the question being asked. Some of the closed-ended questions that asked specifically for follow-up explanations did provide additional space, which allowed the participants to clarify and expand upon their answers when necessary.
Sample:

The sample of Minnesota high school social studies teachers was pulled from the total population of all Minnesota high schools, public, private and so forth. A good amount of time was spent researching Minnesota high schools online and specifically locating history and/or social studies teachers within these programs. In total I contacted a total of 63 schools and their faculty, trying to recruit a variety of educators from all types (public, private, etc.), sizes, and locations within the state boundaries. It should be noted that this number does not include any additional teachers and/or schools to whom the survey may have been forwarded per the request of myself upon my initial letter of intent. As a result of snowball sampling, the survey may have been forwarded to teachers beyond those in the organized sample.

Before exploring the data, it’s important to understand the characteristics of our participant population. Table 5.1 illustrates the general demographics of the survey participants. There was a relatively equal number of women (26) and men (30) who participated in the survey representing a range of ages. The majority of the respondents (80%) stated having at minimum a graduate degree, with some even reporting having multiple advanced degrees, although it is not known whether this is a teaching requirement for the state or not. There was some difference in the number of public school teachers versus those in the private sector (close to 5 to 1). This closely resembles the differences numerically between the public and private sectors within the state’s
education system where the 2006-2007 state statistics summary reported there being a total of 1,881 public schools as opposed to only 495 non-public or private institutions (again at a ratio of nearly 5 to 1). The average number of teaching years for the sample was a little more than 12 years, with 11 years being the mean for teaching history/social studies. The average number of classes taught per year was 8. The majority of those classes (82%) had at least 21 students per class. There was some variation in the course length, as a little over half (55%) of all classes averaged somewhere between 46 – 60 minutes in length.

Table 5.1  *Educational Technology Survey – Demographic Statistics*  
*(As reported by Educational Technology Survey (ETS) results)*

<table>
<thead>
<tr>
<th>Sex</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>26</td>
<td>46.4%</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>53.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher Age</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 30</td>
<td>19</td>
<td>33.9%</td>
</tr>
<tr>
<td>31 – 40</td>
<td>19</td>
<td>33.9%</td>
</tr>
<tr>
<td>41 – 50</td>
<td>9</td>
<td>16.1%</td>
</tr>
<tr>
<td>Over 50</td>
<td>9</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Completed Education</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s Degree</td>
<td>10</td>
<td>19.2%</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>42</td>
<td>80.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>44</td>
<td>78.6%</td>
</tr>
<tr>
<td>Private</td>
<td>12</td>
<td>21.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How many years teaching in the</th>
<th>Response Count</th>
<th>Response Mean Average</th>
</tr>
</thead>
</table>
### Education Field

<table>
<thead>
<tr>
<th>Teacher Participant Count</th>
<th>Average Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>56</td>
<td>12.36 Years</td>
</tr>
</tbody>
</table>

### Teaching Experience

<table>
<thead>
<tr>
<th>How Many Years Teaching Subject of History or Social Studies</th>
<th>Response Count</th>
<th>Response Mean Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>56</td>
<td>11.00 years</td>
</tr>
</tbody>
</table>

### Class Loading

<table>
<thead>
<tr>
<th>How Many Classes* Do You Teach Per Year</th>
<th>Response Count</th>
<th>Response Mean Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>51</td>
<td>8.20 Classes</td>
</tr>
</tbody>
</table>

### Student Numbers

<table>
<thead>
<tr>
<th>How Many Students in a Typical Class*</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 10 students</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>11 – 20 students</td>
<td>9</td>
<td>16.1%</td>
</tr>
<tr>
<td>21 – 30 students</td>
<td>25</td>
<td>44.6%</td>
</tr>
<tr>
<td>More than 30 students</td>
<td>21</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

### Class Duration

<table>
<thead>
<tr>
<th>How Long (in Minutes) is a Typical Class*</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 – 45 minutes</td>
<td>9</td>
<td>16.1%</td>
</tr>
<tr>
<td>46 – 60 minutes</td>
<td>31</td>
<td>55.4%</td>
</tr>
<tr>
<td>61 – 75 minutes</td>
<td>2</td>
<td>3.6%</td>
</tr>
<tr>
<td>More than 75 minutes</td>
<td>14</td>
<td>25.0%</td>
</tr>
</tbody>
</table>

*History or Social Studies class

The teacher participants were asked a variety of questions throughout this survey that ranged from describing their incorporation of educational technology into their lesson plans to addressing issues of institutional and professional requirements. For many of the close-ended questions, the participants were also offered the possibility of expanding upon their responses with additional information.
While searching for these schools online I noticed an intriguing dichotomy, as I was able to discern differences between the schools and their levels of technology. The differences were even apparent through their school/district websites, or lack there of. Some institutions and districts presented in-depth access to their faculty, providing e-mail addresses, phone numbers, even some offered faculty web pages and links to course notes, homework and syllabi. Conversely, in searching for other schools, there was difficulty finding any sort of contact information and the school’s site was frustrating to navigate. As a result, the survey includes schools with diverse technological capacities. A final interesting item to note in this process was the number of schools that suggested having technology ‘teachers’ and or support, something that is likely a recent phenomenon.

**Distribution and Response~**

The survey was created and run through SurveyMonkey.com, an online survey tool. The survey was vetted and pre-tested among colleagues before distributing it to the purposive sample group of Minnesota high school history and social studies teachers. The pre-testing and vetting served to identify potential problems or confusions within the survey to be corrected before being distributed. Distribution of the survey was via personal e-mail to each recruited individual teacher. As stated earlier, the survey was
also forwarded on to other teachers through family, friends, and colleague resources as well. There were a total (n) of 56 participant cases and as seen in Table 5.1, the demographics were varied. The survey was kept up for a total duration of 25 days.

**Operations:**

Upon completion of the survey, the results were transferred from SurveyMonkey to SPSS. The quantitative responses were put into SPSS, while the qualitative responses were reviewed for content, specific themes and identifiable patterns.

**The Classroom -**

In addition to the survey itself, I conducted classroom visits to address further questions beyond what was asked in the survey. I was also interested in actually observing some of these educational technologies in use within the classroom.

I was able to observe a total of five high school classrooms at four different schools; all of which varied by subject, class size, grade, and school demographics. Of the schools visited, a conscious effort was made to include a range of school programs, from public to private, urban to rural, as well as a mixture of class levels and sizes. The
reasoning behind selecting the schools that were chosen was to explore potential distinctions between schools of different sizes, geography and demographics.

Entering these classrooms, there were three specific aspects that I was looking to review. First, I noted the characteristics of the class itself, the room set-up, number of students, grade level, etc. The second characteristic were the technological observations, looking specifically at what types of equipment was available and for whom, the teacher only, some students, all students. Finally, I focused on identifying exactly what the daily standard means of resource for the students and teachers were, whether that was a textbook or some other available form of reference tool. It was also noted if this resource was combined with any additional components (i.e. CD-Rom, on-line access, teaching tools, smart boards, PowerPoint). Additionally, any other unique or significant general variables that were recognized in the class each class were also noted. What was being reviewed in this context was not necessarily a critique of the educator, the course subject, curriculum or the students themselves, but rather to observe what technology was apparent in the classroom, how it was either being used or not used, and what were the capabilities of these educational technologies with the course and its’ content.
In-Depth Interviews -

For this element of the fieldwork, I conducted personal interviews with teachers and administrators from different schools and districts to collect greater qualitative support for the quantitative results that the survey would contribute. The interviews were in the field, in-person and recorded. Each of the nine total individuals that I interviewed, five teachers, 2 school board members, 1 principal and Senior Technology Planner for the Minnesota Department of Education were asked to sign an approved consent form for fair use of their names and comments. This selected group of individuals was a sample population representing different demographic populations, including varying schools and in terms of the administration, different positions.

The design of the interview questions varied slightly between those questions asked to the teachers and those asked to the administration. All questions were based on similar ideas as those asked within the survey but in greater detail and intended to elicit more fluid responses. The following sections highlight more specifically the questions asked of both groups. See Appendices B, C & D for a complete listing of questions.

The Teachers/Educators:

After concluding each independent class observation, an interview was conducted with the course teacher. The purpose of this interview was to engage with the educator
vis-à-vis to discuss the class experience and provide them an opportunity to expand upon their thoughts concerning educational technology in a genuine classroom environment. The follow-up interview also served to potentially clarify any of the events that had just taken place within the class itself. These interview questions differed from those on the survey and were specifically geared for more open-ended responses and opinions. The teachers were asked about the class that had just been observed and about their planning for that day, as well as about their overall teaching methods and preparation. See Appendix B (Interview Questions for Teachers) for the complete list of interview questions.

The interviews were intended to promote a greater dialog about the topic and to hopefully extrapolate ideas that had not been uncovered through the literature review or the survey itself. It was also the intent of the interviews to potentially provide some qualitative evidence in the educators’ own words.

**The Administration:**

Apart from the perspectives of the teachers/educators themselves, are the opinions of those who structure the school system and define its goals, this being the administration. This system of hierarchy within the educational system satisfies the role of the decision maker in terms of determining what is best for the school and the direction
that it is going. Consequently, the administration is also often the source of much debate as differences of opinions and choices of action are questioned. Nevertheless, given that these individuals retain so much influence over the institution as a whole, the viewpoint of particular members of the administration are significant and thus were also considered in the greater scope of this project.

In addition to the meeting held with the Minnesota Department of Education Division of School Improvement Senior Technology Planner, interviews were also conducted with two school board officials, and the principal of one of the school’s visited. The thought process behind these conversations was to gauge the attitude towards educational technology within schools from the administrative level, as well as to determine whether there was any sort of internal pressure coming from the administration towards the teachers themselves.

The questions posed during these discussions were designed to look at the school institution as a whole rather than simply focus on a particular subject or classroom, thus the questions were generally more overarching and inclusive, yet still surrounding the issue of educational technology and its role within the school environment. See Appendix C (Interview Questions for Principals, School Board officials, Staff) and Appendix D (Interview Questions for the Minnesota Department of Education).
“My dog ate it!” – The Missing Links:

It is recognized that while this study does in fact only investigate history and social studies teachers at the high school level, the intention to maintain a smaller pooling sample in order to control for more accurate findings. The parameters of this study were created to minimize the degree of error and to produce quantifiable conclusions and not simply broad generalizations. While it is understood that these results may in fact and likely do vary from state to state and subject to subject, the reasoning behind these specifications lays in designating the means of one small population to compare to the greater whole. In this case, appreciating the responses of Minnesota high school social studies and history teachers, as being a smaller sample voice for the larger high school teacher. This study allows for greater understanding of a particular section of the larger population, thereby offering a form of expertise. Additionally, it should be noted that the individuals that did participate with this study, whether through observation, interviews, or the survey itself, were selected based on specific criteria. While their responses not do represent the perspectives of all history and social studies teachers, the objective was to purposively recruit a broad range of responses from a particular population in order to identify potential patterns of thought. One item of note here, as eluded to earlier, the participants for this study were contacted via e-mail and the survey was done online, creating a procedural limitation in terms of public access and equal availability among
teachers. As per this was the only form of communication with the surveyed participants, it should be noted that this required them to have e-mail and Internet access in order to partake in this study. While this was an unintended but acknowledged consequence of the study, some may argue that this may create an inaccuracy or bias within the collected data due to unequal methods of collection and recruitment.

The following chapter will report the findings of the original fieldwork conducted to draw some conclusions about the research questions.
Chapter 5. Data Analysis: “Statistics”

*It has changed me from being the teacher to the facilitator of class.*

One survey participant’s response when asked what has been displaced by educational technology within the class.

After the literature review, the interactions with administration, and an outline of what I determine to be evident pressures influencing the role of the teacher/educator, it is time to see what the research says. This chapter will partition the report on the fieldwork into two sections: 1.) Class observations and 2.) The survey results and teacher interview data. The data analysis presented in this chapter will focus on the follow themes:

- Standardized Requirements
- Classroom Implementation
- Challenges and Concerns
- Displacement
- Teacher Attitudes and Impressions

Each of these sub-sections will offer an in-depth look at the corresponding themes and how they connect to the larger thesis of educational technology within the classroom.

Generally speaking, there appeared to be common threads in the attitudes that most of these educators were expressing. There were clear concerns about student and teacher accessibility as well as some underlying anxieties, such as fears of overuse and a
loss of interpersonal skills. However there was also a strong tone of excitement for educational technology and the possibilities that it offers as a teaching tool. These conflicting attitudes illustrates an uncertainty among most educators that while they do recognize this evolution within education and are accepting of it, there is still a degree of caution in moving forward too quickly. While this section offered some insight into the opinions of a small select group of those teachers, the following section examines what the larger teaching community feels in response to this issue.

Class Observations -

In order to better understand and assess the application of these technologies within the classroom, I wanted to observe some of these social studies classes to experience firsthand the degree to which educational technology is actually being introduced within the course and its’ related content. Six total classes were observed, each for different reasons. I wanted to examine a range of classes and thus visited schools of varying demographics and differing geographic locations.

I first visited a public school in urban St. Paul, District 625. The school had a very diversified student population, numbering close to 2200 students grade 9 – 12. One of the teachers explained that the entire school, and in fact district as a whole, is firewall protected; meaning that sites like Yahoo, AOL, Hotmail, Gmail, as well as any social
networking sites are restricted. The school did have a rather large broadcast journalism TV studio, which was connected to all of the classrooms and broadcast to students throughout the day. The school offered two areas for computers. One of these areas was in the TV studio where there were 25 computers available for student use, and then the other area was in the library, where there was another small room consisting of roughly 12-15 computers, as well as another 10 scattered around the library. The teacher providing the tour remarked however that the small room in the library was almost always too small for any class use since class sizes were much bigger, and the computers in the library generally did not function. There are future plans to renovate and introduce 35 new wireless computers this upcoming summer, but there was some skepticism in the voice of the teacher when commenting on this plan.

The first class observed was an International Baccalaureate (IB) Political Philosophy course with a total of 38 students enrolled. Reviewing the classroom for any educational technologies, I noted that there were three student computers and one computer strictly for the teacher’s use. In speaking with the teacher before the start of the class, he voiced his occasional frustration with technology but did remark that e-mail was his preferred means of communication both with his students as well as their parents and that he uses his own website for postings of materials and course information. He also acknowledged that most of these students have great access to on-line tools and resources
but again, at least in the context of this high school, these students were the crème de la crème and thus had greater accessibility and privileges.

The class even began with technology, as later the teacher explained that every class starts with a different student selecting a piece of music in order to set the tone for the day. Interestingly, the remainder of the class can be classified as more ‘traditional’ or as it has already been introduced, ‘old school’ in fashion. The teacher used an overhead projector for class notes, and the majority of the class period consisted of class discussion, illustrating excellent student-teacher interaction and dialog. At the end of the course, the teacher explained that the majority of the educational technology used in this particular class was simply for class management and administrative work. However, students were expected to engage with technology outside of class for class projects and were asked to post comments and responses twice per week. There was also a campus Internet portal that all teachers at the school were required to use. This consisted of an on-line grade book and attendance sheet, through which the parents of students had access and could monitor their student’s progress throughout the year.

The next class that I witnessed was a 9th grade American history course that consisted of a much more diverse class of 28 students. There were no functioning computers for student use or other noticeable educational technology present here other than the reserved teacher’s computer. The students sat at grouped tables, which translated into great student interaction and communication and promoted cooperation. The class
used a standard textbook, which offered additional resources such as homework practice, lesson plans, and quizzes through a CD-ROM that was paired with the book to encourage interactivity. The textbook was supplemented by a comprehensive on-line textbook and website at go.hrw.com as well as offering other relatable websites for additional materials. The only divide with this potential resource was the limitations that the school, students and teachers had with being able to access them. Students needed to either access these materials at home or in the computer rooms, which has already been described as being limited.

The next school that I visited was just outside of the major metropolitan area in a suburb of Minneapolis-St. Paul. This school, while still a public institution, was categorized as an ‘Area Learning Center’, which immediately qualifies this school for additional funding and resources due to the demographics of the students who attend. According to one teacher, 110 of the 180 students enrolled at the school, almost 70%, are below the poverty line. It was estimated that only 30-40% have any consistent access to a computer or the Internet outside of school, and this is a favorable estimate.

The first class I observed was 10th grade World History B: Civilization from 1500 A.D. to the Present, which lasted nearly 90 minutes. The class was composed of roughly 14 students, though there seemed to be students coming and going throughout the class period. Later it was explained that there are 27 enrolled but there was a field trip that day. The layout of the class consisted of four round tables and no desks, again a rather
‘traditional’ classroom. There were three computers in the class including one at the desk of the teacher and an audio/visual (AV) cart with a laptop computer, a networked connection, a LCD projector and speakers.

The class itself seemed to function in different sections with individuals working on different parts of a larger whole project but at varying speeds. The one student using the laptop that was part of the AV cart was doing Google searches for information but otherwise there was no use of educational technology during the class; in fact all of the students were still using their textbooks. The single student using the laptop was doing so independently and without instruction or assistance from the teacher in terms of guidance for her research.

The second class at this site, World History A: Civilization up to 1500 A.D in the same classroom and with the same teacher, offered much of the same as the first class. This class, while there were only 10 students attending, again in part due to the school fieldtrip, was distinctly more challenging to control and attain their attention. Cell phones in this class were an obvious problem; in fact at one point the teacher asked one student if he wanted to be on his phone or in class today.

The teacher did use the AV cart during this class, which he later explained was to attract interest and act as a motivator. The use of the projector and PowerPoint presented the students with visuals and a context; in fact the PowerPoint presentation came from the textbook CD-Rom that was being used in the class. However, I noticed that there was
simply a regurgitation of information from the PowerPoint onto the student’s worksheets and the technology did little else. It was the teacher that did the interpretation and made the relevant connections. Most of the student work was still based on traditional means, such as through handouts, worksheets and the use of textbooks. Overall, the teacher appeared to have no limitations or problems with using technology, although the students definitely commented on the ostensible lack-there-of. One student questioned my being in the class, and after it was explained why stated “Man, you in the wrong school for technology. You need to go to East View. They got flat screens and all that shit”. Students recognized a lack of resources as creating an educational divide between themselves and students at other area schools, in fact in talking later with the teacher, he reiterated that the funding for more technology is available but that there are other priorities and needs for the students that must come first before entertaining them with technology. The lack of resources was apparent within the school, and not just in terms of educational technology.

The third school that I visited was a private, parochial school in St. Cloud, a smaller city than Minneapolis and St. Paul, but still relatively large by state standards. Being a private school, this high school was not required to adhere to any of the technology requirements or plans that all other state high schools must follow (See the institutional pressures chapter). This also does not qualify them for any supplemental government funds. This school, with a student population of nearly 800 for grades 7 –
12, relies on private support, student tuition and occasional grants and donations to fund their resources. The school features three large computer labs, both Mac and PC, as well as three mobile computer labs (with 20 laptops per lab cart) through which technology can be run to all classrooms. There is also an on-line campus portal for students and parents in addition to a library database that is accessible through the school’s new website, which launched that day.

Unfortunately, the class that I was scheduled to view had just finished a unit along with student presentations and so I was not able to observe a typical class experience. I was able to get a sense for the set-up of the classroom, which included an overhead projector, a television, and DVD/VCR combo. He did make it known that the whole department is high-tech and the students regularly create PowerPoint presentations, I-Movies, and other technologically imaginative projects.

The last high school that I observed was set in the small rural town of Melrose. While the school is a public school with 520 total students grades 9 - 12, there was a noticeable difference in the amounts of technology available and how it was used within the classroom when compared to that of the other schools observed. The interviewed teacher estimated that approximately two-thirds of the students have some form of technology access outside of school.

I observed a 10th grade U.S. History course while at this school. There were 28 students in the class, which lasted around 50 minutes. The technology that existed within
the classroom included a mounted television/VCR combo, a DVD player and separate CD player on a nearby counter, and the teacher had a personal computer at his desk. Each student had his or her own textbook, but there was no sign of technology being used or introduced. The classroom was laid out in a ‘traditional’ manner, with the individual desks in rows and all facing the front of the room, standard for a lecture-style classroom. Colorful and engaging visuals decorated the classroom.

During the class, the teacher made reference to watching clips from the movie Pearl Harbor, yet these were not viewed during my observation. The teacher did however show tremendous enthusiasm for the content and had a visibly excellent relationship with his students. While his approach is considered to be the traditional “stand and deliver (or talk)” method, the students still appeared to be fully focused and engaged. Students engaged in group work and communal reading later in the class, demonstrating interactivity between the students.

As these anecdotal class observations have shown, there are numerous differences among schools and the amount of educational technology that is available and used within the classroom. Despite the distinctive variables that define these schools, there are still similarities when we closely examine the uses and influence of educational technology. Some general thoughts that I had about the class visits included my surprise at the lack of educational technology that I personally witnessed being used. In all, I observed six classes and while there was technology present within the classroom itself, I
only noted two occasions in which technology was actually being used and one of those instances was independent student work. The only example I saw of educational technology being incorporated by the teacher into the class was a PowerPoint presentation. My expectations going into these class observations were that I would see a noticeable change in the amount of technology used in today’s classroom, yet I was taken aback when I realized that many of these classes still functioned very similarly to what I remember my experiences being over ten years ago. Perhaps I observed these classes on a rare day, but according to the teachers interviewed after, this closely resembled a typical class. I find these experiences interesting, especially when considering how much emphasis has been placed on educational technology, and yet in my own experiences it was barely perceptible. Another aspect worthy of note was the attitudes of the respective teachers in explaining the reasoning behind their incorporation or lack-there-of within the class. This was particularly intriguing primarily because many of the teachers that I interviewed post-class suggested how beneficial educational technology was and what it offered both the teachers and students in terms of expanded learning. Yet the actual class didn’t represent their sentiments and there seemed to be a disconnect between what they would like to see and what was the reality. The next section explores these perspectives at length as the teachers of the observed classes expound upon this issue of educational technology and its mounting influence.
Data Analysis and Interview Findings -

The classroom observations proved beneficial in providing content for understanding this issue. We now turn to the results of the survey and the teacher interviews. The ETS survey provided the core quantitative data as well as some qualitative responses and is the highlight of the field research. The in-depth teacher interviews serve to reinforce the data of the survey.

The survey was completed by a total of 56 high school history and social studies teachers from Minnesota schools. The following is an analysis of both the quantitative and qualitative responses that were reported. The statistical analysis will demonstrate the overall trends among the participants with the qualitative responses helping to contextualize the quantitative data.

The interviews were conducted after observing the classes. I thought it would be beneficial to engage one-on-one with the individual teachers to talk about the class and to get a more candid discussion about their general thoughts about educational technology. I wanted to gain a better sense for how these educators evaluated educational technology, its pros and cons, applications within the context of the class, and functionality as a learning resource for students and teaching tool for educators. Each of the teachers was very willing to share his or her perspectives and all expressed interested in the topic. Each of these teachers is a history/social studies teacher with varying years of experience.
Standardized Requirements:

The first theme of the survey focused on the notion of standardized requirements versus levels of personal choice among teachers on employing educational technology. When asked whether or not they were being required by their schools or districts to use educational technology in the classroom 68% of respondents (n=50) answered that they were not being required to incorporate technology into the classroom; however nearly 95% of these same participants positively stated that they do personally choose to use it in their teaching practices. A comment made by several respondents was that while the use of these technologies within the classroom might not be required at this point, there is an unspoken expectation to incorporate technology, even though it was considered optional. Words like ‘strongly encouraged’ and ‘expected’ were frequently used when clarifying responses. One participant stated, “We are not required, however it is nearly impossible not to utilize some form of technology. We are strongly encouraged to utilize the medium”. There were some who suggested that there were set requirements for incorporation, but this tended to be the minority. What was interesting however, were the explanations by those who did voluntarily implement technology into their teaching. Many described their experiences with educational technology as being a fun, hands-on way of learning and a great resource, especially for preparing students for the future. Educational technology was seen as a way for teachers to engage with students on “their” level and in their world. This was perhaps the most resonating theme throughout the
observations; that technology connects with today’s students because they live in a digital age and technologically advanced world.

Some of the comments offered by survey participants included:

- “It would be criminal to not use available technology. It raises interest level, it’s easier and it appeals to the students.’

- “It is another vehicle for reinforcing information. Students know and use technology more than most teachers, it is a way to work with them in ‘their world’.”

- “(Technology is) FUN to learn, visuals are so important, gives kids a chance to do some hands on learning as well (they are better with computers than I am most of the time!”

- “Today’s kids cannot sit for 45 minutes and listen to a lecture and be engaged and get something out of that lecture. They need to be hands-on. So, if I am going to reach them, I have ‘to play their game’ so to speak and make my lectures more interactive.”

These remarks all seem to express a common idea that the student has changed and therefore educating them needs to as well. It also could be suggested that this change has occurred in large part due to the changing social climate and the inundation of technology in society. The majority of these educators appear to believe strongly that educational technology does raise the level of interest and engagement among their students as well as potentially increase achievement. Nevertheless, it has to be questioned whether or not this transition is in fact removing any of the responsibility from the students themselves for their own education. The question arises: is this transition simply placating student learning so that it’s ‘fun’ for them? Perhaps we’re not
giving students enough credit or respect by doing so. Further, this trend may not be solely about the student but a growing expectation of educators as well. The following comment illustrates this point, “(It) Makes my life easier.”

Teachers were also asked if there were requirements specifically needed to fulfill continuing education or licensure requirements. Of the 50 participants that responded, 70% (35) of those stated that they had not been required to do any sort of continuing education courses, yet 30% (15) did. Those that answered ‘yes’ to this question suggested that these requirements were often paid courses or workshops that were available to educators to learn about the newest and latest tools for teaching. Most participants acknowledged there being available sessions that many teachers take advantage of, usually surrounding some form of training to use new technology that either the school or district has purchased. However, one reoccurring criticism was that there was no consistency between the courses and therefore the crossover of knowledge and ideas into tangible application within the classroom can be difficult. There were also frustrations with the lack of infrastructure, hardware and software during these training workshops that are seen as hit or miss in terms of sometimes being successful and other times, simply ineffective. One participant said it best when they responded, “The biggest problem is finding time and the district allotting time to advance our training technologically. Also, the district does not spend enough on hardware or software to require training because if we had training we would not have anything to use it for.”
The feedback from the individual teacher interviews seemed to echo the responses collected from the survey. It is clear from the teacher interviews that there is a level of acceptance and appreciation for technology within the education world. Still, what wasn’t clear was why the change. When asked if any of them had felt any pressures to use educational technology, whether institutionally, professionally or socially, the responses from the teachers again showed deviation. Three of the five teachers interviewed claimed feeling little to no pressure from any of these factors, with one individual simply suggesting that professionally, teachers are getting burnt out but want to explore the potential diversity that technology offers. The two other teachers questioned did acknowledge feeling some pressure. Ms. Balk referred to the push that existed from the district level to take courses to learn additional applications, as well as the small degree of social pressure that she’s felt from the education world to say current with new methods and trends (Balk interview 2008). Educator Bellmont also acknowledged feeling coercion, not at the institutional level where he stated having great support from his administration, but rather professionally where he feels obligated to adopt new technology. He elucidates this thought by saying that he does this for the kids because it is the best way to reach them and motivate them at times (Bellmont interview 2008). Mr. Bellmont goes on to propose that socially there are also numerous pressures placed on educators. “Business has changed. Schools are slower than businesses, but kids are ahead of the schools” (Bellmont interview 2008). Mr. Bellmont has illustrated
an important point here that schools are constantly playing catch-up to the real world. Schools mimic what is valued in the larger society, but with the students accelerating at a faster pace socially than schools can transition, the challenge lies in trying to not fall too far behind.

**Classroom Implementation:**

The next area of focus of the survey was more specifically on how educational technologies are being used within the classroom, how often and also what level of assistance is being administered by teachers to students. Of the 51 total participants that responded to the question of how often do they typically incorporate educational technology or media into the classroom, the vast majority, nearly 87%, claimed to use technology at least a couple of times per week (41.2%) and many (45.1%) confirming daily usage. This overwhelmingly shows that technology is being used, yet with great variation.

The statistics for student use or participation with these technologies during a given class varied with the highest reported category being from 1 – 10 minutes, which received 27.5% of the 51 responses. Next was 21 – 30 minutes at 25.5%, followed by 11 – 20 minutes with 21.6%, more than 30 minutes with 17.6% and finally 0 minutes receiving 7.8% of the total response. The balanced categories here indicate that student
usage varies by teacher and classroom; however, this could also be a result of differing class lengths as well as the number of students in a given class. Corresponding to this finding of student participation were the reported increased levels of assistance that teachers acknowledge contributing to students and the heightened degree to which teachers are asked to assist students in using technology. To contextualize the relationship between student use and degree of teacher assistance, participants were asked to categorize how often they were needed to assist/mediate their students participation with educational technology according to a scale ranging from ‘Always’ to ‘Never’. The most common response of the 50 individuals that replied was ‘Sometimes’, accounting for 48%. ‘Rarely’ was the next most frequent answer with 30%, and only 16% of the total participant population replied ‘Always’. When asked to give reason for their response, some of the more common but interesting observations from ETS respondents were that “Many things can ‘go wrong’ when using technology, especially when you have 35 students in each classroom. Sometimes computers will break and they need help restarting them. Other times it can be the simplest things like how to save a document or use Excel.” Another teacher commented on the apparent lack of transference for many of these students, who appear incredibly tech savvy when using familiar fun and social technologies, but seem uncomfortable and almost timid to understand some of the educational programs that they are asked to use.
Sometime they have a hard time accessing a site and if it doesn’t work the first time, they can ‘give up’. Sometimes the site itself, if it’s an interactive site for example, will be slow or won’t work somehow and they’ll be frustrated. They don’t troubleshoot very well. They can use sites like MySpace and Facebook easily, but throw a curveball at them and they’re stuck. I also spend time teaching them about the quality of websites and information found online. They learn to analyze different sites and judge for themselves how reliable those sites are. They also learn to check information on several different sites, how to narrow down a search, and how to look critically at the information.

For the most part, teachers reported having to assist students with technology primarily to teach them how to use certain programs and functions as well as for troubleshooting software problems as well as hardware issues. However, while it is the responsibility of the teacher to supervise and assist when needed, many participants also suggested that students often assist other classmates as needed, demonstrating a level of socialization that wasn’t expected through this process.

Figure 6.1 below illustrates teacher responses when asked to what extent had their teaching styles, preparations, or practices changed, if at all, through either their use or lack of use with these technological tools/resources.
Of the 50 total respondents, nearly three-quarters (72%) suggested that their teaching styles and practices have changed some, if not a lot. This is significant because it supports the hypothesis that teaching methods have been modified as a result of educational technology. While this finding cannot determine whether the role of the educator has changed, what we are seeing is a change in the approach to teaching. Most of the follow-up comments to this question echoed this transformation in teaching practices where many individuals reported technology offering them more flexibility and time to explore new and innovative lessons. However, again it was emphasized that this
incorporation of technology was dependent upon whether or not the technology was accessible.

Nevertheless, for the most part, many believe that teaching has evolved due in large part to the availability of newer tools and more options for content learning. One participant expressed that “Technology (when it is seamless) has allowed me to expand how & what I teach to my students. It gives them access to content which is current … It gives them more information in a format they like better than a textbook, even though the info might be the same.” This perspective resonated throughout the participant comments, with another teacher conveying that they have become more tolerant of students who don’t want to participate as much since students can learn in many different ways. However, this passive attitude toward student participation also calls into question the precedent that teachers are establishing within their classrooms. Both students and teachers have responsibilities and expectations within the classrooms, and it is important that the expectations for both are not abated as a result of technology. The responsibility of the educator is still to teach; yet this seems to be getting lost in the translation. As one teacher stated, “I spend a lot less time actually teaching content than I do teaching applications when using the technology application. It also takes control from me and gives it to the students.” The problem here is the focus. This is a social studies teacher admitting that they spend more time teaching the technology than teaching the course content. The technology does need to be taught, but in a media literacy or technology
based course, not in a history or social studies class. This then presents the dilemma of
who is actually teaching the students the course content, the teacher or the technology?

Challenges and Concerns:

Following this notion of displacement of other activities and educational
components within the classroom, I wanted to see if there were any other challenges that
current teachers may have encountered regarding their personal experiences with
educational technology. A battery of fifteen items were introduced to the survey
participants whereby they were asked to indict whether they had ever experienced any
problems, difficulties or reservations related to educational technology in respect to the
stated factor. Examples of these factors included obstacles such as accessibility, issues
with non-applicable materials, challenges holding student attention and many others, see
Appendix A for the complete list and question (Educational Technology Survey and
Consent form).

After collecting the reported data, it was determined that the best form of analysis
for these factors was through a correlation analysis in which it could then be seen if there
were similar characteristics among teachers in how they responded to this set of
variables. The data was run through factor analysis to see if different dimensions of
problems existed and overlapped with a set of independent variables. Factor analysis
revealed there being five dimensions of potential relationships between responses, but one was loaded on multiple factor items which were too smeared to use; it also made no analytical sense because it didn’t achieve simple structure and therefore was disregarded. Thus, four factors remained; three of these factors were statistically significant when run through reliability testing. An additive index was created and the four factors were labeled using the using like terms from the survey question itself. The four dependent variables (factors) as established through the correlation analysis, are listed and labeled below in Table 6.1. *Non-Applicable Incorporation* is defined by materials and resources that have little to no connection to the class subject matter, or that present challenges for the teacher to effectively incorporate. This variable also includes those who report a degree of technophobia. *Accessibility/Tools* is grouped as simply being challenges with finding available technology as well as software complications and hardware problems. *Class Management* has a slightly more involved definition but is characterized by challenges that teachers have with maintaining class control, function and efficiency. *Student Interest/Participation* is identified through the interest and efforts of the students. However, due to a weak reliability according to the Cronbach Alpha test, the *Student Interest/Participation* dependent variable has been discounted from this analysis. It has thus been determined that in fact the variables that correlate with the *Student Interest/Participation* factor are overarching issues, not isolated to one particular demographic of teacher but challenges and concerns among all educators.
Table 6.1 *Dependent Variable Table (Additive index from factor analysis)*

<table>
<thead>
<tr>
<th>Non-Applicable Incorporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Applicable to the course subject matter or class materials</td>
</tr>
<tr>
<td>Challenges in incorporating into a given lesson</td>
</tr>
<tr>
<td>Technophobia (a general fear of or anxiety about using technology)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessibility/Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
</tr>
<tr>
<td>Software issues, confusions or complications</td>
</tr>
<tr>
<td>Hardware problems/malfunctions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack/Loss of time</td>
</tr>
<tr>
<td>Differences in the ability of students</td>
</tr>
<tr>
<td>Challenges in grading and assessment of student progress</td>
</tr>
<tr>
<td>Displacement of other activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Interest/Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student unwillingness to participate</td>
</tr>
<tr>
<td>Student interaction and cooperation with others (group work versus independent)</td>
</tr>
<tr>
<td>Challenges holding student attention/interest</td>
</tr>
</tbody>
</table>
The subsequent table, Table 6.2 presents the independent variables as defined by earlier survey questions and responses.

Table 6.2 Independent Variable Table (Variables as defined by survey questions)

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Definition (as used from survey questionnaire)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Years</td>
<td>How many years the teacher been teaching the subject of history or social studies.</td>
</tr>
<tr>
<td>Students/Class Size</td>
<td>How many students in a typical history or social studies class.</td>
</tr>
<tr>
<td>Assistance</td>
<td>How often is the teacher needed to assist/mediate his or her students with participation with educational technology.</td>
</tr>
<tr>
<td>Student Use</td>
<td>How much time (in minutes) do students use or participate with educational technology during a typical class.</td>
</tr>
<tr>
<td>Teacher Age</td>
<td>Age – the teacher’s age.</td>
</tr>
</tbody>
</table>

Given the background research and literature regarding this issue, in addition to my own experiences, what I expected to find through this data was supporting evidence that while these educational technologies have their intended benefits, there have also proven to be some unintended and unconsidered consequences. More specifically, I hypothesized that teacher age, years teaching and size of class would all be factors resulting in further complications when using educational technology. I believed that hardware and software issues along with accessibility would be concerns across all levels of teaching. However, I felt that with other issues, such as application of materials and class management, there would be a distinct difference generationally between educators and their attitudes towards the employment of such technology. I expected that older,
more ‘seasoned’ teachers would have a harder time implementing technology and therefore report greater challenges. Whereas younger teachers, perhaps more familiar with these technologies due to their own personal experiences in using them throughout their education, would be more accepting of educational technology and better able to incorporate these tools into their teaching practices. Quite simply, my hypothesis followed the old adage, you can’t teach an old dog new tricks. Table 6.3 displays the findings.

Table 6.3 *Pearson’s Correlations between Non-Applicable Incorporation, Accessibility/Tools, Class Management and Independent Variables*

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Non-Applicable Incorporation</th>
<th>Accessibility/Tools</th>
<th>Class Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching Years</strong></td>
<td><strong>.195</strong>* (56)</td>
<td>.049 (56)</td>
<td>-.198* (56)</td>
</tr>
<tr>
<td><strong>Students/Class Size</strong></td>
<td><strong>.181</strong>* (56)</td>
<td>.081 (56)</td>
<td><strong>.260</strong>** (56)</td>
</tr>
<tr>
<td><strong>Assistance</strong></td>
<td><strong>.373</strong>* (51)</td>
<td>-.061 (51)</td>
<td>-.190* (51)</td>
</tr>
<tr>
<td><strong>Student Use</strong></td>
<td>-.074 (51)</td>
<td><strong>.213</strong>* (51)</td>
<td>-.126 (51)</td>
</tr>
<tr>
<td><strong>Teacher Age</strong></td>
<td>.154 (56)</td>
<td>-.123 (56)</td>
<td><strong>-.212</strong>* (56)</td>
</tr>
</tbody>
</table>

***p ≤ .01 **p ≤ .05 *p ≤ .10 n of cases in ( )
(Significant findings are in bold and highlighted)

What these numbers indicate is that there are strong, statistically significant correlations between some of the independent variables and the dependent factors. For example, when we compare the independent variables of teaching years, student/class size, and assistance and relate them to *Non-Applicable Incorporation*, we see that there is
statistical significance with these findings. What this shows is that as the number of teaching years increases, the more likely it is that issues regarding non-applicable materials will occur. Similarly, as the number of students and class size increases there is a positive correlation with increased non-application/incorporation of materials, potentially meaning that there are fewer materials available for larger class sizes. The most statistically significant of these findings is the relationship between assistance and Non-Applicable Incorporation, where there data shows an incredibly strong correlation between the two ($r = .373$); suggesting that the more non-applicable material that is being introduced and incorporated into a given lesson, the more teacher assistance is needed.

The next factor examined was Accessibility/Tools. For this dependent factor, only the variable student use had any statistical significance ($r = .213$). The findings insinuate that there is a positive correlation between the two. Logically this makes sense, as the more student use there is with a given hardware or software, the greater the chance of technical malfunction. Additionally, the more students using a given technology, the greater the demand for said technology, thereby increasing issues of accessibility.

The final factor that showed significant statistical correlation with the set independent variables was Class Management. This was perhaps the most intriguing analysis because of fact that three of the four variables that showed significance were negatively correlated. Thus indicating that instead of an assumed increase in problems with class management due to the implementation of educational technology, there were
in fact less reported problems related to the individual independent variables. Teacher age, teaching years and teacher assistance all showed inverse relationships when correlated with Class Management. What this tells us is that, contrary to previous beliefs and my initial hypothesis, older and more experienced teachers are expressing less concerns regarding class management issues when introducing technology into the classroom than younger, less experienced teachers are. While it was assumed that younger educators would seemingly have a greater understanding of these technologies and their applications due to generational norms and personal use as early adopters, in fact is was older teachers that expressed fewer class management issues. There are a couple of potential explanations for this. One being that older, more experienced teachers have already established their teaching niche and skills and thus have figured out how to manage a class regardless of the resources or content involved. The fundamentals of teaching, such as managing students and materials, has become habitual, thus incorporating a new tool, such as technology, becomes easier if it is the only challenge or focus. For younger, less experienced teachers still ‘learning the ropes’ of teaching, implementing a new technology into a lesson or method that is already relatively new or unfamiliar regardless of past experience with it, can create even more complications and concerns. Another possible explanation for this pattern is that older teachers may be unaware of some of the newer, perhaps more complicated technologies or they are only using tools that they know how to use or that have been referred to them. It is also
possible that more experienced teachers also are already comfortable with the material, therefore there is less stress regarding the potential problems that a new technology may cause because they have a back up plan. Regardless, it has been shown that experience does factor into this equation. These however, are only suggested hypotheses as to why we are seeing this statistical trend between class management and teaching experience/age. Still, it stands to reason that for younger teachers, they can see, understand, and even perhaps are better able to find a given educational technology and it’s application, but they can’t seem to understand how to implement it into the larger classroom setting when compared to more experienced teachers.

The one independent variable that demonstrated a positive relationship ($r = .260$) was between Class Management and students/class size, which plausibly argues that the more students in a given class, the greater potential for class management problems.

What is perhaps most interesting when reviewing Table 6.3 is when comparing the dependent variables of Non-Applicable Incorporation to Class Management and noticing the almost mirror opposites in the findings. Whereas Non-Applicable Incorporation has significant positive correlations between the factor and the given independent variables, Class Management produced the negative, or inverse, correlations with some of the same variables. These differences are distinct in two areas, those being the independent variables of teaching years and assistance. We see in Table 5.4 an increase in concerns among teachers regarding applicable incorporation as the
independent variables increase. The contrary is true for Class Management, suggesting that with older teachers, who typically have more years of teaching experience, they have less reported problems with class management, regardless of the technology. Furthermore, the findings also report that the more assistance a teacher provides to the students, the less class management challenges they will encounter, which makes logical sense due to the increased teacher involvement and supervision. The only variable that both of the dependent factors showed similarities with was students/class size; where again, logically any time that there are more students in a class, there is going to be the potential for greater problems and teacher frustrations.

**Displacement:**

Anticipating that there were going to be high reported levels of both student and teacher uses of educational technology, I wanted to address the issue of displacement and see what, if anything, these teachers would expose as being disregarded by technology within the classroom. The qualitative responses were varied and interesting, inciting issues of: time being lost for both prep time as well as class time, textbooks have become a thing of the past, there is less paper being used, and also the straight lecture teaching style being a lost art. Some of the participant comments include:
• “It takes more time outside of the contract day for me to learn how to meaningfully incorporate the technology. I spend a lot of time that I do not get paid for to learn how to use these tools.”

• “Nothing displaced; just better lessons can be given.”

• “E-mail takes a ton of time responding to parents. PowerPoint’s with media clips have driven away typical lecture formats.”

• “Less teacher driven sharing of info (less lecture and more student exploration) which is always good.”

• “It is hard to get students to read and simply listen and participate in classroom lectures. I feel the need to give class time to students to make sure they do read the information.”

• “There is sometimes the expectation that teachers need to entertain for 45 minutes. There are some days when I’ll lecture about something b/c that’s the best way I’ve found to get that information to the kids. On those days you’d think I told them they had to do push-ups for 3 hours!”

• “I need to make sure the students still understand that technology, whatever it may be, is still just another tool for them to use to obtain information. They still need to work their brains to find and understand what they are learning.”

This final perspective seems to be an important one to highlight, as it needs to be re-emphasized that educational technology is a resource not a substitute.

While many of those that contributed qualitative responses did suggest nothing actually being displaced, there were others that did raise concerns. Some spoke of lost time and unpaid work. Others voiced concerns about face-to-face interaction and communication being lost. Finally, there were even a few that hinted at the notion that
although technology has made their profession easier in numerous ways, their role has changed. It is as though technology has become a sort of autopilot for teachers where the purpose of the educator is being redefined. It was also addressed that there is more individual student learning occurring and that this allows for students to advance at their own pace and skill level. Yet, there is a danger in this if 1.) Students are learning the wrong things or using misguided information, and 2.) This creates a greater disparity and knowledge gap among students, and consequently more work for the teacher to mediate and assess. There is also the issue of socialization between students being lost, although this notion was less frequently mentioned.

The personal interviews uncovered similar attitudes amongst the teachers. Some responded that nothing has been displaced, in fact most of the time students know more about the technology than the teacher (Schlomann interview 2008). Teacher McMorrow agreed with this outlook and remarked that research has shown that the stand and deliver approach doesn’t work, so if this has been replaced, it’s a good thing. He added by saying that “technology might take longer to achieve what you want to achieve, but you get so much more out of the learning process. It’s simply more enriching” (McMorrow interview 2008).

While the notion of displacement within the classroom may not be as significant according to the perspectives of these educators, there was still the question of whether there are any negative aspects related to the use of educational technology, either
personally connected to the teacher’s practices or in how the class collectively functions. The feedback varied from issues with the management of the classroom being a little more difficult and chaotic to issues of application and relying on the technology to work when it doesn’t. Other problems described technology taking longer to not only to set-up but also to mediate, especially when it comes to student run programs. One reoccurring negative that was mentioned by more than one of the teachers interviewed discussed issues of plagiarism and how because of so many endless resources, students are simply using whatever they find online as their own work and without any indication of their own contributions. Teacher McMorrow also talked about how kids can get sidetracked and thus it’s harder to monitor student work, especially when these students are so tech savvy and can find ways around it. The real problem McMorrow believes is using technology without respecting it. Teachers often use technology but don’t understand it, and this is where challenges, frustrations and potential problems occur (McMorrow interview 2008). Most of the teachers agreed though that ultimately kids want technology. They don’t want the traditional approach because they get bored. However, the caveat here is that since this is a different form of learning for students, there is an inconsistency with their learning from subject to subject, and therefore as the teacher, the person responsible for guiding these students, it’s important to be cautious in one’s use of technology. As Mr. Bellmont suggests, he doesn’t have issues with teaching with technology because he has been careful in using it. “It’s only if and when you rely too
heavily on it that you can find yourself in trouble, but even then, you still need a back up plan” (Bellmont interview 2008). Thus while there are apparent flaws with this form of practice, the key seems to be incorporation in moderation and always have alternative strategies.

Perhaps the most common sentiment among respondents was the fact that textbooks and old-fashioned materials were being replaced. Most saw this as a great benefit, as textbooks and encyclopedias are not updated as often as Internet sources are. Three of the five teachers interviewed affirmed that textbooks have become an almost irrelevant ‘fifth source’ and have been pushed to back of the line in terms of being a preferred resource among both students and teachers. One teacher even reemphasized that these textbooks need to be displaced. They are not always applicable for students and there is no variation in the level of the textbook. The textbook may be a level 13 but the class is a level 10 (Bellmont interview 2008). The only drawback that was voiced in these interviews was that at times it can be a struggle to integrate technology when you are needed to re-teach the basics in order to fit in all of the content (Balk interview 2008).

However, this is specifically why I intentionally chose to look at social studies, because of the static nature of the subject and it’s fixed content of information. This particular subject allows for controlled resources, edited by experts and authorities for subject matter, and while the Internet may provide plentiful information, the credibility of said information is unreliable. Thus, at what costs to our students are we jeopardizing
their educations if the resources we use are not being held to the same critical standards as those in the past? Unless educators are actively patrolling and mediating the sources that their students are engaging with through technology and media, there is the danger of mis-education.

**Teacher Attitudes/Impressions (Benefits and Drawbacks):**

In attempting to gauge the overall attitudes of the individuals in this survey, participants were asked to respond to a series of statements regarding educational technology. The statements posed different perspectives and the responses were ranked on a five degree scale from Strongly Disagree to Strongly Agree, see Appendix A for the complete list and question (Educational Technology Survey and Consent form). The result details are listed below in Figure 6.2
As can be seen from the results in Figure 6.2, the vast majority of the teachers that participated in this survey held many of the same attitudes in response to the proposed statements. Over 80% of all of the teachers who responded agreed with all of these statements regarding technology except one. The one statement that offered some discrepancy was that of feeling pressure to stay up-to-date with the newest technologies.
in order to be an effective teacher. This statement elicited mixed perceptions as over half (52%) agreed or strongly agreed, while a quarter (24%) disagreed or strongly disagreed (the other 24% claimed being neutral). According to the perspective of one ETS participant, “We, as educators, need to constantly stay updated on technology, because our students are at, or usually, advanced in this area. To overlook technology in today’s classroom is an enormous mistake.”

This theme was also discussed during the individual teacher interviews, but with a more specific focus on whether or not these teachers believed there was a perceivable difference in the attitudes and responses from students within the classroom due to the introduction of educational technology. The responses that I received from the interviews expressed mounting concerns as to there being noticeable changes in the ways in which students are communicating as a whole. As teacher Chris Bellmont suggested, “Kids have a new language through text messaging and IM that is not applicable in the real world. The language for communication has changed and is different; there’s a different warmth” (Bellmont interview 2008). Another voiced the idea that students are not being engaged in the present and living in the moment because they are inundated with technology and its power to multi-task and be different places at once (McMorrow interview 2008). Generally speaking however, there has been a positive response from students in regards to the use of technology in the classroom. These teachers reported higher levels of engagement when using educational technology and that this has acted as
a motivating factor for improved focus and interactivity. This is part due to the fact that students who have technology available outside of the school use it frequently, and others that don’t have such access, are simply excited about learning through a new medium, because it is different. “Students feel comfortable using and seeing it; it’s almost a form of entertainment” (Dusha interview 2008). Teacher McMorrow continued this notion by relating that even though most students are past the ‘Wow’ factor of technology, it is still novel enough to be interesting when used appropriately and gave the example of an updated version of Oregon Trail software that allowed for greater interactivity for his students. He also acknowledged feeling an expectation from his students to use technology since it is available (McMorrow interview 2008).

So what are the student and teacher benefits? Table 6.4 categorizes the student and teacher benefits as suggested by the teachers interviewed.
<table>
<thead>
<tr>
<th><strong>Student Benefits</strong></th>
<th><strong>Teacher Benefits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>School is more interesting</td>
<td>Better teacher communication</td>
</tr>
<tr>
<td>Less lecturing</td>
<td>More accessibility to information</td>
</tr>
<tr>
<td>More creative learning and in a different way</td>
<td>Each teacher can create their own website</td>
</tr>
<tr>
<td>More involvement and interaction</td>
<td>Grading, attendance and other administrative work is faster and easier.</td>
</tr>
<tr>
<td>Adds variety to lessons</td>
<td>Also gives parents and students access to monitor student progress</td>
</tr>
<tr>
<td>Students are already familiar with most technologies</td>
<td>Keeps the teacher up-to-date and on their toes</td>
</tr>
<tr>
<td>Particularly with social studies, students can visually see and experience history in multiple ways</td>
<td>Allows the teacher to look for different ways to present lessons and varying ways of seeing something</td>
</tr>
<tr>
<td>It acts as an attention grabber and motivator</td>
<td>Multiple resources and options</td>
</tr>
<tr>
<td>The reality is that kids will be bombarded with technology media in the future and in their occupations, so they need to learn the basics</td>
<td>Helps to get students engaged</td>
</tr>
<tr>
<td></td>
<td>May cover less material but students learn more from what is covered since much more expansive</td>
</tr>
<tr>
<td></td>
<td>Provides additional time and convenience, that might have been wasted on printing, copying, etc</td>
</tr>
<tr>
<td></td>
<td>On-line tools such as Blackboard and SurveyMonkey offer excellent teaching tools that the students can easily use</td>
</tr>
<tr>
<td></td>
<td>Overall can manage job better</td>
</tr>
</tbody>
</table>

(**These were the benefits that the five teachers interviewed listed and is not intended to represent a complete list or the opinions of others. Also, benefits that were repeated were not duplicated)**
As it can be seen, there are some obvious benefits to incorporating educational technology into the classroom for both teachers and students, some even overlapping the two categories.

Almost every teacher responded positively that educational technology has been a valuable addition to their teaching of history/social studies and a useful resource in general. For some, it has meant further development professionally and a plus in terms of presenting alternative and primary resources at a cheap price. Educational technology has also offered a greater form of communication and connection with these resources, allowing students to feel and experience things through film and visuals that before they may not have been able to, especially for the subject of social studies. Yet while the process of finding information has become easier and more accessible, the challenge has been in the interpretation of the materials and sometimes even in finding materials, “it’s not always what you need or want” (Balk interview 2008).

Every teacher interviewed did agree that educational technology has been beneficial for his or her teaching practices, with the majority claiming time and convenience as the biggest advantageous; yet, when asked if these resources have changed their teaching styles, preparations or practices, the responses were mixed. One teacher suggested that technology has provided many more choices, including new tools, new strategies, differentiated instruction, and an overall innovative way to connect with her students (Schlomann interview 2008). In contrast, another teacher remarked that he
was definitely still more of a ‘traditional’ teacher. It is my assumption however that most educators would tend to fall somewhere in the middle of this spectrum, and relate closely to the perspective of Mr. Bellmont who asserts that it is a mix of old and new. “Technology is not a primary way to teach and prepare, one big advantage is the information sharing and communication that is possible. But I still try to have a common and traditional lesson” (Bellmont interview 2008).

With such positive outlooks towards educational technology being expressed among the majority of the teacher respondents, I wanted to know more specifically what types of technologies had they used or heard of specifically in terms teaching history and social studies. The same examples of resources seemed to consistently emerge in the responses. Educational tools included LCD projectors, DVD/CD-ROMs, Computers/Laptops and the Internet were frequently mentioned, as were common application materials such as PowerPoint, Google and Google Earth, pod- and webcasts, online journals and other web activities and sites such as YouTube for videos. However, there was some wariness regarding some student on-line research sources such as Wikipedia. As one teacher commented, “There is a propensity to use Wikipedia and other non-peer-reviewed sources for information that can be at times unreliable”. There were other programs/tools as well, such as Edline, iclicker, and Moodle, that were repeatedly introduced, all of which are educational classroom software specifically geared towards educators. Whiteboards and Smartboards were also mentioned, however,
many respondents also noted that they had heard of these resources but hadn’t necessarily personally used. Some of the comments that teachers expressed regarding these new tools stated, “I use PowerPoint a lot, specifically with history. I find that I use the Internet a lot to pull primary resource activities and documents to teach a concept.” Another teacher claimed, “I really like using the compute projector and be able to bring up diagrams, pictures, charts and such that enhance lectures, discussions, etc. … I strongly believe that the use of pictures and history builds a connection for students.” These comments seem to underscore the perspective of most educators that educational technology does add a new dimension to teaching as well as student processing.

**Data Analysis Conclusions -**

So what has all of this shown us? It has shown that there are a numerous variables that come into play when we closely examine this technological transition in education. As the findings collected here in the primary fieldwork have revealed, while there are noticeable patterns among teachers in their responses to many of the questions regarding there are still at the present, some mixed opinions about educational technology. The statistics at times seem to tell one story, yet the qualitative comments expose an underlying hesitation. This was especially perceptible through the interviews conducted vis-à-vis with the teachers.
Every one of the teachers interviewed expressed some drawbacks that have resulted from this technological incorporation. Most of the teachers suggested that they use technology sparingly and only for a set amount of time because, like anything else, students can become desensitized to this form of learning and it will lose its effect, but “if it’s not overused, it’s a good change-up” (Dusha interview 2008). Teacher Chris Bellmont offered another viewpoint when he discussed the loss of socialization among students, and that too much technology removes the teacher from being a role model. “It’s about learning how to act in real life situations. The interaction is key and the personality of the teacher is still the most important” (Bellmont interview 2008). This opinion was echoed by some of the other teachers who recognized a definite decline in interpersonal skills and not just among students but society in general.

While the flashy movements and visuals, speed and interactivity of educational technology has acted as a sort of attention grabber for anticipating students, there was some frustration conveyed in terms of how students are participating with these resources. Educator Jennifer Balk, after explaining how she had to teach AP juniors and seniors how to use an Excel program, stated, “Most students don’t seem to ‘know’ technology. They discover primary documents on-line but don’t know the differences between reliable versus unreliable” (Balk interview 2008). She reiterated that students do know technology, but they don’t know the material, and therefore, technology is not
enhancing student learning, but simply helping to focus attention (Bellmont interview 2008).

Recognizing that this implementation of technology within the educational system is seemingly inevitable, I was interested in learning how/if these educators would potentially change the ways that educational technology is used within their courses. The teacher interviewees presented various ideas including my favorite, getting rid of cell phones. However, there was a consensus that there needed to be more access to technology both for the students as well as for the teachers themselves. “Educational technology shouldn’t be a novel thing, it should be a standard” (McMorrow interview 2008). There was some disagreement however about the implementation of such tools. Ms. Balk and Mr. McMorrow champion for greater application and a more seamless integration within the classroom, claiming that more access means more continuity among all users and that textbooks should be a thing of the past (McMorrow interview 2008). Surprisingly, educators Mr. Bellmont and Mr. Dusha regard this transition as dangerous. Both educators commented on the lack of books and decline in reading skills and how students need to know how to research properly without the Internet and reliance on sites like Google. “Technology can be a double-edge sword if it is overused. It can make you and your project look good, but are you really understanding and learning from it?” (Dusha interview 2008). Interestingly, Mr. Dusha requires that for the students’ final class project, they must use at least one non-technology source. For Mr.
Dusha the frustration lies in there being a lack of options other than technology. Mr. Bellmont insisted that the tools that are available are sufficient and adequate, but feels that it is the job of a good teacher to be able to effectively use what is available, whether traditional or technological.

In concluding these interviews, each educator was asked what he or she perceived to be the pedagogic value of electronic/media learning as opposed to traditional methods of instruction. The responses collected for this question seemed to parallel the attitude that each individual teacher had exhibited thus far throughout the interview. There were mixed sentiments among the five teachers, a case of old school versus new school teaching; but generally a feeling that the two approaches to teaching compliment each other existed. Some saw this change towards a more technologically advanced style of education as a result of the changing student population and an emphasis on greater educational diversity in terms of what students need to know for the future. “If students continue to do just paper, pen and textbook learning, we’d be even further behind than we are today” (Schlomann interview 2008). Mr. Dusha resonates this perspective by adding that students have changed and that they want to see and experience what they are learning. “If kids grow up with it (technology), they tend to know it better. Most of these students have been exposed to technology already. It is my role to teach them how to learn” (Dusha interview 2008).
The overall attitude towards educational technology seems positive among most educators, as the majority of the teachers that participated in this project have held strong in their convictions that educational technology can be very beneficial and effective if used properly and under the right guidance. Yet still, there persists to be a degree of uncertainty that dissuade some teachers from fully adopting this shift. As one survey participant responded when asked about his/her overall impressions of educational technology, “I think it’s too early for most to see if they have been beneficial. Many of the technologies are new and finding appropriate applications for academics takes time. In the end, how beneficial they are still depends on the instructors use of them.”

The final chapter will reflect back upon what has been discussed to this point and offer some perspectives on the potential future direction of this issue.
Chapter 6. Conclusion

While technology can be great, it will NEVER take the place of a good teacher. A lesson can be fabulous without the use of any technology.

One teacher survey participant’s perspective on educational technology

Technology has become a staple within the larger society and the everyday lives of most people. The use of technology within education has subsequently followed suit. As teachers and students continue to explore this new form of learning, it is important to acknowledge this transition in education and what it may mean in terms of the future of education.

“Lesson Review”: Summary of Findings -

To this point we have learned that there is a back and forth tension between educators in regards to what educational technology has contributed to the classroom. We have seen, through the perspectives of current educators, that there are tangible benefits to using educational technology in the classroom, yet there is still a degree of reservation with full technological implementation. Teachers, like most others, are creatures of habit and thus tend to resist change when there is unfamiliarity, such as with incorporating new technology. This uncertainty has led to the current debate among
those in the education field between traditional and technological (Old school vs. New school) teaching and the overall effectiveness of each.

The reality is that both are meaningful avenues for teaching and must go hand-in-hand in order to be effective (Bellmont interview 2008). In either case, it’s a matter of knowing one’s priorities and the goals for the students as set forth by the teacher. The greatest challenge in fusing the two methods is discovering a common means to communicate ideas in order to create understanding. Finding this connection is the responsibility of the educator, but their role does not necessarily change through either approach. In an interview with Patrick Welsh, Peter Cevenini, director of Cisco’s Internet Business Solutions Group K-12 education division, discussed this technical revolution in schools. “Teachers shouldn’t have to change how they teach to fit some technological device. Teaching is a craft, and many great teachers instruct in totally different ways. Too many school systems are becoming device-driven – they’re buying computer devices because they’re there” (Welsh, 2008: 1). As education continues to progress in the direction of technological teaching, we may start to encounter the potential danger of teachers experiencing ‘technological somnambulism’. With educational technology supplementing course content and teaching, the role of the teacher has at times seemingly been taken out of the equation. Regardless, the majority of the teachers who participated in the ETS survey reconfirmed the importance of the teacher.
The results of the fieldwork demonstrated a greater overall enthusiasm for educational technology than was originally anticipated. Nevertheless, teachers still expressed concern over what technologies are being introduced, the degree to which they are incorporated, and the practicality of these resources. One survey participant had this to say,

I think any technology can be beneficial if it helps with learning the material. However, I think often times teachers are encouraged to use technology for the sake of ‘using technology’ and its just a bunch of bells and whistles. It isn’t as necessary to teach students about technology today (as it was maybe 10 years ago, for example), because students already know and are learning way more than teachers, and spend most of their days already connected. In fact, I think sometimes students are spending too much of their days on the computer.

Teacher participant comment from ETS survey

The verdict is still out on the longitudinal results of educational technology and what it will mean for not only the present generation of students but future generations as well.

The data analysis has shown that there are discrepancies between teachers in terms of their technology use both in lesson planning and in course teaching. There were differences between teachers in a variety of demographic factors, including age and the number of years teaching. Unexpectedly, older and more experienced teachers seemed to have an easier time with incorporating educational technology into the classroom, at least in terms of class management. Additionally, there were contrasting views on the role of educational technology and what it does for student learning. Some see technology as a
key element for subject comprehension while others view it as simply an innovative attention-grabber. Despite these differences, it was interesting to see how many commonalities there were among the participating teachers. Some of the challenges, such as accessibility issues as well as hardware and software problems were concerns for all teachers across the board. These technological obstacles transcended individual use and can be viewed as more structural or organizational issues.

It was initially proposed that teachers also face some external influences, which may result in further pressures institutionally, socially, and professionally. While some of the teacher participants did individually express feeling some anxiety through these factors, especially in regards to staying up-to-date on new educational technology, they were not as significant as originally hypothesized. However, I still contend that these pressures exist and will increase with time.

Despite the fact that the results of the survey seem to indicate that there is a positive attitude toward educational technology and while this may in fact be true, there is the possibility that there could be a bias in terms of the surveyed participant responses as a result of feeling the need to accept and adapt to this technology movement. Teachers are recognizing this evolution and are adhering to the sentiments of the collective whole so as not to be the exception.
“Homework”: What’s Next

We find ourselves at a crucial crossroads within education development as the social world continues to dictate the structure and curriculum of today’s schools. Now, with new variables such as social networks, open-source materials and user-generated web content, there is an even greater need to understand the direction in which technology is moving within the larger society as well as within our education systems.

Culturally, we are seeing a growing necessity for a greater degree of understanding and technological competency at a younger age, before the next generation of students start to engage with these tools and consequently misunderstand their potentials. Technology has simply become a response to the evolution of the student. Being well versed in technology has become a priority and an asset, and educational technology is being looked upon to be the key to future success and employment. Indeed, this educational shift appears inevitable, but how we handle this transition is crucial.
This is not just the future versus the past, uncertainty versus nostalgia; it is about encouraging a fundamental shift in personal priorities – a minimizing of the real, physical world in favor of an unreal ‘virtual’ world. It is about teaching youngsters that exploring what’s on a two dimensional screen is more important than playing with real objects, or sitting down to an attentive conversation with a friend, a parent, or a teacher. By extension, it means downplaying the importance of conversation, of careful listening, and of expressing oneself in person with acuity and individuality. In the process, it may also limit the development of children’s imaginations (Oppenheimer, 1997: 17).

It is important to recognize the sentiment that Oppenheimer is expressing here as one not of close-minded or naïve rebellion, but rather as someone concerned with the present ideology of this sub-culture. It is not only the role of the teacher that is changing but the learning style of the student as well. We have redefined what we find socially valuable but at what costs.

In offering some suggestions for the future, it is critical that both teachers and administrators recognize the assets and liabilities of educational technology as revealed in the previous chapter. Attention must be paid to what extent these resources are being implemented and to what degree our students and teachers are becoming dependent on them. It is also important that there is strong communication between the administration and teachers in order to collectively reach a clear understanding of the reason for implementation. What needs to be addressed are the challenges and concerns that were presented earlier in Chapter Six, primarily those issues of accessibility, accountability and support from all levels within education. I believe that it is also essential to
acknowledge the fundamental traditions that have brought us to this point within education. The make-up of a great teacher includes skills that cannot be developed solely through technology. Rather they are learned through experience over time. It is imperative that teachers not evolve into such a ‘technological teacher’ that the traditional ‘human teacher’ becomes forgotten and obsolete.

There is an underlying fear among some that this evolution in education could lead to the extinction of traditional teaching. As educators quickly scramble to play ‘catch-up’ with current social trends and innovative resources, the fundamentals of the profession are being lost. However, many would argue that these ‘losses’ are being exchanged for something better. Educational technology does offer some benefits for student and teachers, but we must control for the potential pervasiveness that technology presents and be aware of becoming overly reliant on these tools. As one teacher survey respondent offered when discussing his/her overall impressions of educational technology, “I think it’s too early for most to see if they have been beneficial. Many of the technologies are new and finding appropriate applications for academics takes time. In the end, how beneficial they are still depends on the instructors use of them.” One question that stems from this perspective asks: Are we a culture simply using these new technologies as a scapegoat for our declining educational levels and rankings? This question might be too introspective to answer, but is worth asking.
Still, who is to blame if the student is unsuccessful? In almost all cases, the teacher is held accountable; an unjust consequence if the technology is at fault for misinterpretation, misuse, or simply malfunction. Nonetheless, it is the role of the teacher to take responsibility for such situations and thus we need to re-examine what it is that teachers do and what they are credited for doing.

Technology may be enhancing the experience of discovering information in new and creative ways, but it may also be unintentionally marginalizing our education system standards and the quality of our teachers. Educational technology has become a double-edged sword. For those teachers who know how to employ this technology, it may enhance the teaching practices, but conversely it can be used as an excuse for others who become reliant on it. For weaker teachers these technologies can be helpful additions, but it may hinder stronger teachers. This then becomes recognized as an institutional problem and a larger organizational component of how we want our schools structured. Today’s teachers are learning to develop different skill sets, which may or may not include technology. Why not designate learning how to use and apply new technologies as a new elective subject, independent from others? This would potentially create new teaching positions for educators who specialize in teaching with technology. It could also alleviate the pressures that exist on current educators to incorporate these tools into their classrooms, which arguably has modified their individual teaching styles and practices, especially when it is not in their given field of expertise. If we are to champion
educational technology in the classroom then there must be a greater degree of support for these teachers. Regardless, we must continue to elevate the quality standards for our teachers to ensure that they never are completely substituted for technology.

Ultimately, it is the role of the teacher to successfully bestow knowledge onto their students. It is my belief that how they choose to do so in an effective manner should be individually determined. There are those that are excited about new and innovative ways of teaching and grow tired of the same method. Then there are others that have remained consistent with what works for them and should they stay successful with this process, then why should they be forced to change it when changing their methods may only hinder their abilities. I do recognize the evolution of education and the direction that learning is going, but I also appreciate successful teaching, and just like in any profession there is always more than one way to do something and be successful. I worry that this push toward a standardized technological classroom may be limiting some of the potential for outside-the-box teaching. This is not to say that teachers do not need to accommodate new forms of teaching and make adjustments as they see fit to educate their students in the best ways possible. If you remain stagnant and adverse to change, you may get left behind. We cannot paint all educational technology with the same brush. Instead we need to be selective in determining which technologies we incorporate into our lessons and our motivations for doing so. There is a need for developing larger sophisticated meanings out of the materials that these technologies present; hence the role
of the teacher to mediate this learning process by expanding on the information presented to mold a greater understanding: to transform the objective understanding to the subjective meaning. “Teachers teach, and they are an essential part of the sense-making process that must go on for students to learn disciplinary content in meaningful ways” (Ashburn & Floden, 2006: 153).

I do believe that further, more in-depth research needs to be conducted and it needs to be done on a longitudinal scale in order to see if the intended benefits of educational technology are truly achieving their objectives of further developing successful students.

“After the Bell”: Concluding Remarks

The purpose of this project was not to deny the application of technology as a potential benefit for both teaching and learning. Rather, it was intended to take a step back and critically examine the direction that current education is moving. I believe it is important to recognize the impact of technology in education, and as an educator myself; I am concerned with the potential risks and costs that may accompany this technological transition. Technology may create new learning possibilities for students, but it may limit others. As we continue to progress as a society heavily influenced and reliant on innovation, it has become easy to get swept up in the fast-paced, instant-gratification of
what technology offers. Yet technology has also triggered unintended consequences and a degree of ambiguity at times.

I have come to appreciate that educational technology can substantially influence learning in a positive way. I’ve also realized however that the handling of implementing this resource has been mismanaged and has resulted in problems and frustrations throughout the education field. Our approach to the application of these technologies must be made more humanized and relevant to practical teaching goals and the objectives of these technologies in the classroom be made more tangible. This is perhaps the biggest challenge with educational technology. While teachers may outwardly express both enthusiasm for new tools and resources, they are also dissatisfied with the pressures that have been place upon them and their methods to incorporate, often without support or training. Technology is present in our culture and we’re not retreating from it, and therefore our educational system needs to conform, but in a manner appropriate and still respectful of the traditional staples of good education, that of the teacher-student relationship. Educational technology can enhance learning, but not all of the time, and not when forced.

Ultimately, the issue has become one that is more about the relationship that people have with technology than the technology itself. Learning is about interactivity, but it is also about impressions and experiences. Educational technology cannot offer what the teacher/human element provides. While educational technology may at times
make things easier and more available, technology also dictates these experiences as being student - technology as opposed to student - teacher. What is often overlooked is the emotional development that also occurs during this stage of life for students, and no technology can offer this learning.

The hallmark of education must continue to be the teacher and the relationship that a teacher has with his/her students. “The relationship between the teacher and the student is still the most important” (McMorrow interview 2008). While we know more about what works and what does not, neither of these methods replaces that relationship between teacher and student. Technology is a supplement that simply compliments the learning process. Suggestively, McMorrow also commented that even with educational technology, there are still teachers teaching in ineffective ways; further emphasizing that it’s not the technology that teaches but rather the teacher (McMorrow interview 2008). The perpetuation of the role of the teacher in education must continue to be emphasized if our educational system is to successfully evolve in combination with the implementation of educational technology.

As we have learned from Marshall McLuhan’s claim back in 1964 that the medium is the message (Calvert 1999), it is not necessarily what the content is, but rather how it is presented that is important. Yet why does this presentation need to come in the form of a technology? After all, can we not reason that teachers are in fact the mediums
of educational messages? Is it not the role of the teacher to impart knowledge and effectively assist student learning? I was taught so.
Appendix A: Educational Technology Survey (ETS)

Educational Technology Survey

1. Introduction

Dear Teacher/Educator,

My name is Shane Hoon and I am a Master's degree candidate at Georgetown University in Washington, D.C. I am conducting a study called The Technological Teacher: The role of computer technologies in the high school classroom. This study is being done to fulfill requirements for a Master of Arts thesis project. I request permission to use quotations in said thesis, which will become part of the collection at Georgetown University's Lauinger Library. This study will examine the influence of new educational technologies in high school classrooms. I want to gain a better understanding of educational technologies from the perspective of the teacher/educator. This letter is to inform you about the study and ask for your consent to participate in the study.

You will be asked to complete a survey/questionnaire regarding your perceptions of educational technologies within the classroom and the changes in your teaching methods, practices and preparations due to these educational technologies and changes to methods. The questions of this survey/interview will focus solely on your perceptions/opinions regarding technology tools within the classroom, and will specifically investigate the evolution of the classroom environment in regards to these resources. This information will help me to assess the practical functions and social implications of educational technologies within the classroom. There are minimal to no risks with this study. You will not benefit from this study however your contributions will be an important part of the overall study and should you like a copy of the project upon completion, you can request one from the principal investigator.

You do not have to answer the questions if you care not to, and you will face no penalties whatsoever. All information will be kept entirely anonymous and confidential. You need not put your name on the questionnaire should you choose not to. The information from the questionnaire will be entered into a computer database for analysis. Names will be removed from the questionnaire and replaced with ID numbers. The results will be reported for the group as a whole so that no individual can be identified unless consent is received. The surveys will be stored in a locked facility that will be accessed only by the researchers. Once the research is completed, the surveys will be destroyed. Your participation is completely voluntary, and you may withdraw at any time with no penalties or risk.

My contact information is below. You may contact me at any time if you have questions or concerns about the survey and/or the study in general.

Shane Hoon
e-mail: shanehoon@gmail.com
Telephone: 305.297.7411

Thank you for your time and consideration,

Shane Hoon
Master's degree candidate
Georgetown University

1. Please check the box indicating your consent or refusal to participate in this study.

- I consent to participating in the aforementioned study.
- I refuse to participate in the aforementioned study.
2. Sex
   ○ Female
   ○ Male

3. Age
   ○ Under 30
   ○ 31 - 40
   ○ 41 - 50
   ○ Over 50

4. What is your level of completed education?
   ○ High school
   ○ Some college
   ○ Bachelor's degree
   ○ Graduate degree
   ○ Other (please specify)

5. What city do you teach in?

6. What type of institution do you teach at?
   ○ Public
   ○ Private
   ○ Charter
   ○ Other (please specify)

7. How many years have you been in the education field?

8. How many of those years have you taught the subject of history or social studies?

9. How many history/social studies classes do you teach per year?
Educational Technology Survey

10. How many students do you have in a typical history or social studies class?
- 1 - 10 students
- 11 - 20 students
- 21 - 30 students
- More than 30 students

11. How long (in minutes) is a typical class?
- 1 - 30 minutes
- 31 - 45 minutes
- 46 - 60 minutes
- 61 - 75 minutes
- More than 75 minutes
Educational Technology Survey

3. Educational technology in the classroom

The following set of questions looks specifically at your usage of educational technology in the classroom.

For the purpose of this survey, educational technology will be defined as any tool or resource, specifically computer technology and media, that supports the learning process. Examples of this are Whiteboards, computers, digital media, etc.

12. Have you been required by your school or the district to use educational technology in the classroom and in your teaching?

☐ Yes

☐ No

If so, how? please explain
### Educational Technology Survey

13. Have you personally chosen to incorporate educational technology into your classroom and teaching practices rather than just because you were required to do so?

- [ ] Yes
- [ ] No

Why or why not?

<table>
<thead>
<tr>
<th>14. How often would you say you typically incorporate educational technology or media into your classroom and lesson?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. How much time (in minutes) do your students use or participate with educational technology during a typical class?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 minutes</td>
</tr>
</tbody>
</table>
16. What would you say, if anything, has been displaced by these educational technology within your classroom? (What, if anything, has changed as a part of your incorporation of educational technology?)

17. On average, how often are you needed to assist/mediate your students participation with these educational technologies?

- Always
- Sometimes
- Rarely
- Never

In what ways are you required to assist your students?
### Educational Technology Survey

4. **Teacher/Educator practices and applications of Educational Technology**

18. Have you been required to participate in continuing education courses structured around new educational technologies and learning how to use these tools/resources?

- [ ] Yes
- [ ] No

If so, what were those requirements and which technologies were used?
19. If you answered yes to the previous question, how useful did you find those requirements?

- Very
- Somewhat
- Not very
- Not at all
- N/A

If you would like to explain your response.
### Educational Technology Survey

20. To what extent have your teaching styles, preparation, or practices changed, if at all, through either your use or lack of use with these technological tools/resources?

- [ ] A lot
- [ ] Some
- [ ] A little
- [ ] Not at all

Please explain your answer.

21. What educational technologies have you heard of or used in your history/social studies lessons? Please specify as to whether the technology is used within your classroom or is something that you have simply heard of or read about.
### Educational Technology Survey

**22. If you have used or heard of such educational technologies, what are your impressions of those technologies? Have they been beneficial?**

---

**23. Please indicate whether you agree or disagree with the following statements according to your own perceptions.**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I sometimes feel pressure to stay up-to-date with the newest technologies in order to be effective as a teacher.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I believe educational technologies are necessary for teaching the curriculum and subject that I teach.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I believe educational technologies lead to greater student participation with course content.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I believe educational technologies provide a better understanding of the subject matter for my students.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I think my students would find learning social studies through technology a more enriching and helpful experience than learning without any technology.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Educational technology has been an asset for myself as a teacher and a successful addition within the classroom.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
24. Have you experienced any problems, difficulties or reservations related to educational technology in respect to:

(Please check all that apply)

☐ Accessibility
☐ Software issues, confusions or complications
☐ Hardware problems/ malfunctions
☐ Lack/loss of time
☐ Challenges in incorporating into a given lesson
☐ Non-applicable to the course subject matter or class materials
☐ Misleading or inaccurate information/content
☐ Displacement of other activities
☐ Differences in the ability of students
☐ Student unwillingness to participate
☐ Student interaction and cooperation with others (group work versus independent)
☐ Challenges holding student attention/interest
☐ Challenges mediating student participation, individually and in groups
☐ Challenges in grading and assessment of student progress
☐ Technophobia (a general fear or anxiety about using technology)
☐ Other

Please feel free to expand upon your responses, or if you have any other experiences not listed, please share.
Educational Technology Survey

5. Conclusion

This is the end of the survey.

I want to personally thank you for your time and cooperation.
Your responses are very valuable and helpful to the overall success of this study.

Again, if you have questions, comments or would like further information regarding this study or survey, please feel free to contact me using the e-mail provided below.

Sincerely,

Shane Hoon
shanehoon@gmail.com

25. If you are willing to be contacted for possible further questioning, please provide your contact information in the space below.
Appendix B: Interview Questions for Teachers

Name: __________________________________________
Position: _______________________________________
School: _______________________________________
Years in position: _______________________________

• Have you noticed a difference in the ways that your students interact with others vis-à-vis as compared to online? Differences in attitudes, language?

• In what ways have students responded to your use of technology in the classroom? Has there been any change in levels of respect or appreciation for your teaching, your activities and lessons?

• How would you comment on the socialization or lack there of, that these technologies might be influencing?

• How would you describe the attitudes of your students when using these technologies?

• If you could change the way that technology is used in the classroom would you? and if so, what would you do?

• Do you personally feel social pressures or obligations to use educational technologies in your lessons?
  o Institutional pressures?

    o Professional pressures?

    o Social pressures?
• How has educational technology been an asset and successful for you in teaching history/social studies?

• What, if anything, has been displaced or disregarded in place of these technologies in the class?

• Would you say that educational technology has been beneficial for your teaching practices?

• Have your teaching styles, preparation, or practices changed at all through either your use or lack of use with these tools?

• What is the pedagogic value of electronic/media learning, as opposed to traditional methods of instruction?

• Have you noticed any negative aspects either in regards to your teaching methods/practice or the way that your classroom functions as a result of using educational technology?

• How does incorporating educational technology into the classroom benefit students or teachers?
Appendix C: Interview Questions for Administration

Name:_______________________________
Position:____________________________
School/District:_______________________
Years in position:_____________________

1. Generally speaking, what do you believe has been the greatest influence on why Minnesota high schools have began to incorporate more technology into the classroom? Social pressure?

2. What have you determined to be the pros and cons of this?

3. What types of educational technologies have been implemented?

4. How do you critically determine and segregate what technologies/resources are appropriate and potentially successful?

5. How much government either state or federal funding is allotted each year for updates with technologies within the classroom? Is this given to all schools or are they (the schools required to apply for it?

6. How current are these updates? Or how often are they updated?

7. On average, are there requirements on how much/often a given educator/teacher needs to incorporate technology into the classroom?

8. What current requirements are in place for teachers in terms of continuing education classes?
9. How do you determine what will be implemented and/or used within classrooms at your school?

10. Have you personally noticed a shift or change in the role of the teacher/educator?

11. How does incorporating educational technology into the classroom benefit students and/or teachers?

12. What, if anything, has been displaced or disregarded in place of these technologies in the class?

13. What are the potential problems, limitations of doing so? (software/hardware concerns? Ability and willingness of students to use?)

14. What is the pedagogic value of electronic/media learning, as opposed to traditional methods of instruction?

15. Do you ever see technology replacing the teacher in the classroom?

16. Do you feel that the state department of education, individual school boards, and/or schools themselves are putting added stresses or pressures on high school educators to use educational technology within the classroom?

Any other follow-up questions/responses:
Appendix D: Interview Questions for the Minnesota Department of Education

Name: ______________________________
Position: ______________________________

1. Generally speaking, what has been the greatest influence on why Minnesota high schools have began to incorporate more technology into the classroom? Social pressure?

2. What have you determined to be the pros and cons of this?

3. What types of educational technologies have been implemented?

4. How do you critically determine and segregate what technologies/resources are appropriate and potentially successful?

5. How much government either state or federal money is allotted each year for updates with technologies within the classroom? Is this given to all schools or are they (the schools required to apply for it?)

6. How current are these updates? Or how often are they updated?

7. On average, are there requirements on how much/often a given educator/teacher needs to incorporate technology into the classroom?

8. What current requirements are in place for teachers in terms of continuing education classes?
9. Is there a great disparity between the uses of educational technology and media in the public vs. private sector?

10. Do you have any statistics or materials regarding this topic? And/or statistical information on the amounts of educational technology used within the average high school classroom (specifically social studies/history classes)

11. How does Minnesota rank nationally in regards to technology use in schools? How does this compare to Minnesota’s national ranking in terms of academic achievement?

12. How do you determine what will be implemented and/or used within Minnesota classrooms?

13. Have you personally noticed a shift or change in the role of the teacher/educator?

14. How does incorporating educational technology into the classroom benefit students and/or teachers?

15. What are the potential problems, limitations of doing so? (software/hardware concerns? Ability and willingness of students to use?)

16. What is the pedagogic value of electronic/media learning, as opposed to traditional methods of instruction?

17. Do you feel that the state department of education or individual school boards are putting added stresses or pressures on high school educators to use educational technology within the classroom?

Any other follow up questions/responses:
Works Cited:


194


[http://kff.org/entmedia/7500.cfm](http://kff.org/entmedia/7500.cfm)

[http://kff.org/entmedia/7251.cfm](http://kff.org/entmedia/7251.cfm)


Torney-Purta, Judith. 1986. *Qualitative and quantitative research on the knowledge of global issues, international attitudes, and skills of negotiation among secondary school students*. Dept. of Education.


Interviews Cited:


Works Referenced:

“aether”: Steve Jobs Interview - 1996.

allAfrica.com: Kenya: Reaping Benefits of Technology Revolution (Page 1 of 1).


Listen to the Natives // Marc Prensky.  


Maharaja Sayajirao University of Baroda. 2001. Emerging Technologies in Education. Vadodara: Centre of Advanced Study in Education.


