

The Implications of Internet Filters in Secondary Schools

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May we always be learners

## Dedication

My grandparents,  
Edward Joseph Giblin and Marie Thompson Giblin  
were children of Irish immigrants.  
Although they were not able to participate in higher education,  
they were life-long learners.  
They gave me immeasurable gifts:  
Freedom of expression through dance and conversation;  
Global awareness through travel and folktales;  
And self-confidence, because they told me I could do anything.

Ed and Marie, I dedicate this work to you.

Thank you for sharing your lives with me.

## Abstract

President Bill Clinton signed the Children's Internet Protection Act (CIPA) into law in 2000, requiring schools and libraries to install specific technology that blocks Internet access to visual [not text] depictions that are obscene, child pornography, or harmful to minors.

Advocacy groups, such as the American Civil Liberties Union as well as many educators voiced concern that this law would infringe on intellectual freedom and countered that it was far better to teach students to be effective users of information than to "censor" the Internet. Advocacy groups also began investigating whether CIPA affected students' ability to access information they needed for school.

This study explores whether Internet content filters block information secondary students' need to complete Minnesota Academic Standards, and if they do, how teachers and technology administrators react. Professional development in media and information literacy and the extent to which teachers prepare their students in these areas also were examined. Participants for this study were district technology administrators and teachers who taught those subject. Data collection included surveys, in-depth interviews, and systematic URL checks.

This study can be used as a baseline to further examine the effect Internet content filtering might have on a students' ability to access information. Additionally, findings also may influence school districts to examine how well their teachers are prepared to teach the media and information literacy skills their students need to be effective users of information.

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## Chapter One

### Introduction

More than a century ago, American philosopher, psychologist, and educational reformer John Dewey, declared his pedagogic creed concerning education (1897). Dewey's overarching belief was that education should embrace both the psychological and social aspects of life. Educators who have not studied Dewey may think that concepts such as constructivism and teaching students how to learn (rather than teaching a series of facts) are relatively new ideas. However, Dewey championed these and other beliefs more than a hundred years ago:

With the advent of democracy and modern industrial conditions, it is impossible to foretell definitely just what civilization will be twenty years from now. Hence, it is impossible to prepare the child for any precise set of conditions. To prepare him for the future life means to give him command of himself; it means so to train him that he will have the full and ready use of all his capacities; that his eye and ear and hand may be tools ready to command, that his judgment may be capable of grasping the conditions under which it has to work, and the executive forces be trained to act economically and efficiently (Dewey, 1897).

It is not likely that Dewey foresaw the invention of the Internet, with its explosive power to rapidly share information, but he did have the foresight to know that learners need to be in charge of their learning journey and that they need to become critical thinkers to succeed in the world. Dewey's philosophy and pedagogic creed support the issues posed in this study. Dewey also saw the importance of a student's need to develop critical thinking skills to determine what is true, good, bad, or irrelevant. This study is designed to determine whether mandated filtering of an information source, in this case the Internet, impedes this process.

The Internet became a common educational tool in the mid-1990s. Prior to that time, the use of computers in schools was primarily limited to the software installed on the hard drives of individual computers or on a local server within the school. Technology advanced to include the ability to connect computers to wide area networks, allowing people to share information through computer networks all over the world at any given time. Vice President Al Gore recognized the educational advantage of this emerging technology in 1994, when he issued his now famous challenge at the Superhighway Summit in Los Angeles that every U.S. classroom should be connect to the Internet by the year 2000.

Educators recognized the value of the Internet as an educational tool as well. Information found in a textbook is often outdated, but information on the Internet can be as current as the previous minute and is available at any time. Given the same level of Internet access, students could have the same quality of information no matter where they lived or how well their community funded their schools. Educators often are concerned, however, because although information on the Internet can represent multiple perspectives, it also is unregulated. As a result, educators have begun to stress media education to help students develop strong search skills for locating information and critically analyzing its validity (M. Heins, & Cho, C., 2003; Thornburgh, 2002; Willard, 2002b).

In the 1990s there also were legislative attempts to regulate the Internet. Chapter Two will chart the history of Internet regulation but it should be noted here that, after years of controversy, the Children's Internet Protection Act (CIPA) eventually passed and was signed into law by President Clinton in 2000.

CIPA requires all K-12 schools and public libraries to install and use Internet content filters in order to receive certain federal funding. In order to comply with CIPA all Internet access must be filtered, whether minors (under 17) or adults are using the computer. The law states that when minors are using the

Internet, access to visual depictions that are obscene, contain child pornography, or are considered harmful to minors must be blocked or filtered. Requirements are more restrictive for minors than for adults and filters may be disabled for adults conducting *bona fide* research (American Library Association, 2000).

After CIPA became law, many groups voiced their concerns about the implications of the law (M. Heins, 2003; The Free Expression Policy Project, 2002; Willard, 2002c). The American Civil Liberties Union (ACLU), the American Library Association (ALA), and the National Coalition Against Censorship (NCAC) adopted formal positions that called CIPA a form of censorship that could interfere with intellectual freedom.

The groups listed above, as well as educators devoted to media and information literacy, spoke out about the pitfalls of Internet content filters and stressed that it was far better to teach students how to be effective users of information than to use a mechanical means to, in their terms, “censor” information (Willard, 2000).

There are many different ways to set up Internet filters and a variety of means are employed by filtering software to select sites to be blocked. Most companies use one or more methods such as blocking key words (‘sex’ or ‘hate’) or blocking images that have a large amount of flesh exposed (Electronic Frontier Foundation, 2002; Free Expression Policy Project, 2003; M. Heins,

2003; M. Heins, Cho, C. , 2001; Kranich, 2004). Early anecdotal studies, as well as subsequent quantitative studies, found that most Internet filters blocked more context than is required by CIPA (Bromberg, 2002; M. Heins, Cho, C. , 2001, Resnick, 2004). The extent of overblocking varied depending on the filter manufacturer and on the settings chosen by the school. Early research also found that the pre-set filter “packages” offered by manufacturers block far more than CIPA requires. In order to make sure that filters did not overblock content, users needed to review, monitor, and adjust filter configurations to ensure that the filter blocked only what was necessary to comply with CIPA.

Early reports focused on the specific issues related to the Internet content filter, including the accuracy of the filters, the possible impact on intellectual freedom, and the impact that Internet filters may have on the “digital divide” (Bromberg, 2002; M. Heins, Cho, C. , 2001, Resnick, 2004). After a failed attempt to repeal CIPA in 2003, the focus of concern shifted to the actual effects of CIPA on student learning (Electronic Frontier Foundation & Online Policy Group, 2003; M. Heins, Cho, C. & Feldman, A., 2006). It was this latter issue that served as the foundation for this study.

*Statement of Purpose*

The overarching question in this study was, “Do Internet content filters limit secondary school students from accessing information they need to complete Minnesota academic standards?” There is very little documented research examining the effect that Internet content filters have on student learning. A search in the Digital Dissertation database revealed only four academic studies on Internet filters. Three studies examined various aspects of CIPA. Only the fourth study, which was conducted in Canada (where CIPA is not in effect), explored the implications that Internet filters have on ‘lost opportunities of learning.’ However, that study did not investigate the potential impact that Internet filters may have on required learning outcomes such as state academic standards.

One quantitative study by the Electronic Frontier Foundation (EFF) and the Online Policy Group (OPG) (2003) measured the extent to which Internet content filtering blocked access to web pages relevant to the required curriculum in California, Massachusetts, and North Carolina. This study examined N2H2 (Bess) and SurfControl, two filtering software products used commonly by schools across the country. The study showed that, even when schools implement Internet blocking [filtering] software with the least restrictive settings, they still



blocked between 0.5% and 5% of the search results identified as legitimate sources for state-mandated curriculum topics. The researchers in the EFF and OPG study did not investigate how technology administrators actually set up the Internet content filter in their respective school districts, nor did they discuss with teachers the realities of teaching with Internet content filters.

The results of the EFF and OPG study prompted this researcher to question how technology administrators and educators manage the CIPA rule in Minnesota. Information from the studies cited above and readings from the related literature led the researcher to develop the following hypothesis: *School districts that adopt more restrictive Internet content filter settings may be restricting access to information students need to complete the requirements of the Minnesota academic standards.* In addition, the researcher drew on Dewey's philosophy that it is important that students develop critical thinking skills to determine what information is true, good, bad, or irrelevant. Inspired by Dewey's assertion that students should be in charge of their own learning, the researcher surmised that if Dewey were alive today he might be concerned with the effect that Internet filtering might have on student learning. With this inspiration, the researcher posed the following questions to determine whether teachers were providing lessons to develop students' critical thinking skills:

1. Do Internet content filters limit secondary school students from accessing information and, if they do, to what degree does the level of filtering (highly filtered v. minimally filtered) used by a school district effect the ability of students and teachers to access information students needed to meet Minnesota Academic Standards (Minnesota Department of Education, 2007)?
2. How do teachers and administrators respond when they find that Internet filtering software denies students access to information necessary to complete assigned work in order to meet state academic standards?
3. Do teachers have the media literacy and information literacy training necessary to understand the implications of teaching students how to access, analyze, and critique information from diverse perspectives?
4. Are teachers informed about the role that media and information literacy skills have in preparing students for a future which we cannot predict?

### *Methodology*

A complete description of the methods used for this study are found in Chapter Three. This section provides a brief overview of the research design and the methodology used for this study. The data collection for this qualitative study included: 1) an initial survey to identify qualified school districts, 2) in-depth interviews and surveys to collect data for the study, and 3) URL checks through the filtering company web sites used by each participating school district.

To collect the data, the researcher used Flannigan's (1954) Critical Incident Technique (CIT), a qualitative method designed to draw out the most memorable aspects of an event or experience from the study's participants (Ruben, 1993). CIT was an appropriate method for this study because it allowed the researcher to gather data from the experiences of the participants as well as from the technology providing information.

To analyze, and report the web search data, the researcher used the Chenail Qualitative Matrix (CQM). CQM makes it possible to sort ideas and report them into a simple conceptual framework (Cole, 1994).

### *Delimitations and Limitations of this Study*

The major delimitation of this study was its focus on two specific Minnesota academic standards. The researcher was purposeful in choosing two

standards that could be expected to involve accessing and using information that Internet content filters might block in restrictive settings. Study limitations include the limited number of school districts involved (nine out of 345 possible Minnesota districts). However, participants representing rural, metropolitan, and greater Minnesota communities were recruited for this study and seven different brands of Internet content filters were included as well. As with all research involving human subjects, the reliability of the data were dependent on the responses from the participants.

#### *Significance of this Study*

The results of this study may foster additional examination of the effects Internet content filters have on students' ability to access information, particularly when that information is necessary for completing Minnesota academic standards, but also when it is used to provide students with multiple possibilities for directing their own learning. As Dewey said, "Diversity of stimulation means novelty, and novelty means challenge to thought" (1916). In addition, it is hoped that those reading this study are motivated to examine whether teachers are receiving the media and information literacy skills they need to prepare their students for "a future in which we cannot predict" (Dewey, 1897).

## Review of the Literature

This study was designed to address three issues. The first issue was to determine whether software that filters Internet content limits secondary school students' access to information necessary to complete Minnesota Academic Standards. The second issue relates to how teachers respond if they find that Internet filtering software denies students access to information necessary to complete assigned work to meet state standards. The third issue concerns how well-prepared teachers are to teach students media and information literacy skills and whether they intentionally present multiple perspectives when teaching the two standards addressed in this study. The result of the investigation of these three issues may also have implications regarding secondary school students' right to intellectual freedom.

The purpose of this chapter is to provide a context for the study of the implications of the Internet filtering required by the federal Children's Internet Protection Act (CIPA). This chapter begins with a review of the origins and development of the Internet in public schools, discusses how educators reacted to students' use of the Internet, and then chronicles the legislative efforts and court rulings that resulted in the current requirements for Internet filtering. The chapter explains what schools and public libraries need to do to comply with CIPA;

reviews research into the effects, limitations, and advantages of various Internet content filtering systems; reviews First Amendment advocates and educators' reactions to CIPA; and defines current issues related to Internet filtering. The final section provides a theoretical framework and describes the issues that will be addressed in this study.

### *The Rise of the Internet in Schools*

When the Internet became a common educational tool in the mid-1990s, concern over its unregulated content quickly surfaced. Before computers connected to the Internet, use of computers in educational settings was limited to the software that schools installed on the hard drives of individual computers or on a local server within the school. Internet access in schools came first in the form of Local Area Networks (LANs) that connected within schools or connected schools to each other. LANs eventually grew to become Wide Area Networks (WANs), and finally school district networks began linking to larger unregulated networks and the "World Wide Web."

Many people use the terms *Internet* and *web* interchangeably, but they actually are two different things. The Internet is a massive network of networks that connects millions of computers together, allowing them to communicate with any other computer connected to the Internet. Information travels over the Internet in a variety of languages known as protocols. One of these protocols is

the World Wide Web, or simply the web. The web is an information-sharing model that is built on top of the Internet. The web uses the HTTP protocol, only one of the many languages used on the Internet to transmit data.

At the Superhighway Summit in Los Angeles in 1994, Vice President Al Gore issued his now-famous challenge to connect every U.S. classroom to the Internet by the year 2000. Gore played a key role in developing and supporting the Educational Technology Initiative and its four pillars (computers, Internet access, educational software, and teacher training), introduced in President Clinton's State of the Union Address in 1996 (Nellen, 1999). Another person instrumental in wiring schools was John Gage, director of science for Sun Microsystems, who initiated the first "Net Day" in California in 1996 as a result of Clinton's State of the Union Address. This initiative encouraged a collaborative approach that used volunteerism to get schools wired. This concept was later adopted nationally (Nellen, 1999).

#### *Educators' Early Reactions to Student Internet Access*

As schools became wired and connected to the world, educators recognized the value of the Internet as an educational tool. Information found in a textbook can be ten years old by the time it reaches a student. Information found on the Internet can be as current as the previous minute and is available every day and at any time. A student can find a wealth of information quickly

without entering a library and can access information representing multiple perspectives. Because information sources on the Internet are unregulated, educators began to stress the need for media education in schools. Media education includes developing strong search skills to locate information and critical analysis to determine the validity of information (Heins, 2003; Thornburgh, 2002; Willard, 2002b). Given the same level of Internet access, students across the country can have the same quality of information whether they live in a rural community or in a metropolitan area.

At the same time, educators scrambled to implement strategies to educate, guide, and protect children from web sites that might be harmful to them. When Internet use began occurring in schools and libraries in the mid-1990s, conservative groups such as Concerned Women for America and Focus on the Family concentrated their efforts on limiting access to Internet content (Kingrey, 2005; Willard, 2002a). The mid-term elections in 1996 bolstered the conservative majority in Washington. Conservative groups such as the Alliance Defense Fund, Family Research Council, American Center for Law and Justice, and Concerned Women for America, had a platform to speak during congressional and committee hearings in favor of filtering legislation (Kingrey, 2005; Nickerson, 1999; Perkins, 2003; Peters, 2001; Willard, 2002a). Since the Internet was not



regulated, concern was expressed that children could access material that might be pornographic or otherwise harmful to minors.

During this period, educators explored options for protecting school children on the Internet. As director of Responsible Netizen, an organization dedicated to providing strategies for protecting kids online, Nancy Willard produced a report to inform and educate parents and professionals about how to keep kids safe while learning online (Willard, 2000). Willard focused on “helping young people gain the knowledge, decision-making skills, and motivation to make safe and responsible choices when they are using the Internet.” Willard’s premise was that any young person wanting to access the “dark side” of the Internet could do so; the only thing to do was to empower young people to make good choices, to educate students about the importance of engaging in safe and responsible behavior, and engage students in high-quality educational uses of the Internet.

Willard also recommended updating Acceptable Use Policies (AUPs). An Acceptable Use Policy is a formal policy with procedures and guidelines for technology use, adopted by a school district’s Board of Education. A school board policy, if violated, typically has consequences such as denying a student’s computer access privileges. An updated AUP that would reflect increased access and usage of the Internet might require that adults supervise students’ access to

the Internet, that there are seating charts and sign-up sheets for computer labs and workstations, that monitors are easily visible, and that use of the Internet be limited to educational purposes (Willard, 2000).

Willard stressed the importance of helping young people learn to do what is right, regardless of the potential for detection and punishment. She maintained that the two biggest problems with filtering were that filters raise a level of false security and that students' First Amendment rights may be violated (Willard, 2000).

#### *History of Legislation Leading to the Children's Internet Protection Act (CIPA)*

While educators struggled to react to the instructional and organizational complexities of the Internet, legislative attempts to regulate the Internet also surfaced. As noted below, several laws attempting to regulate Internet content passed but were quickly found to be unconstitutional. Eventually the Children's Internet Protection Act (CIPA), which required K-12 schools and public libraries to install and use content filters, passed and was signed into law by President Clinton in 2000. This section chronicles the legislative efforts that led to passage of CIPA, which is still in effect today.

Observing the progression of Congressional bills pertaining to filtering and child protection can be helpful in understanding the context for the current law. Internet-related bills began mentioning protecting children as early as 1996.

Table 1 provides a historical perspective on the number of bills concerning the Internet introduced in Congress between the 103rd and 107th legislative sessions.

Table 1

Chronology of Internet Related Bills

Session	Year	Bills Introduced Concerning the Internet	Bills Introduced Concerning Filtering Internet Content
103	1993-94	4	0
104	1995-96	28	0
105	1997-98	222	7
106	1999-00	498	12
107	2001-02	605	4

The *Telecommunications Act of 1996* led to later legislation that mandated filtering of computers in public schools and libraries. Under the 1996 Act, schools and libraries became eligible for “Universal Service Support,” commonly known today as *E-Rate*. The concept of Universal Service Support was a direct result of Vice President Gore’s efforts to prepare schools for the 21st century and President Clinton’s State of the Union Address earlier that year. The explicit goal of the Act was to ensure that schools and libraries had affordable

access to telecommunications (United States Department of Education, 1997).

The Federal Communications Commission (FCC) issued an unanimous ruling for implementing E-Rate service on May 7, 1997 (United States Department of Education, 1997). Schools and libraries became eligible to receive discounts of 20 to 90 % on telecommunication services, Internet access, and internal connections necessary for providing technology in the classroom. Embedded within the *Telecommunications Act* was the *Communications Decency Act* (CDA). The CDA was the first federal attempt to regulate sexually explicit material by seeking to prohibit the transmission of obscene or indecent messages to minors through the Internet, making it a felony to transmit or knowingly display indecent material over the Internet (McAfee, 2003). The American Civil Liberties Union (ACLU) immediately challenged the CDA as unconstitutional and obtained a preliminary injunction against enforcement from a federal district court. In 1997, the Supreme Court affirmed the district court's ruling that the CDA abridged First Amendment speech rights (McAfee, 2003; Reed, 1998). This ruling became a precedent for the future protection of electronic speech under the First Amendment, which states, "Congress shall make no law... abridging the freedom of speech..." Free speech can take many forms. Electronic speech encompasses traditional forms of speech in the display of words or images on a

computer, and it also includes newer forms of “speech” such as Internet addresses, domain names, and “code” (Hiller, 2004).

There were seven legislative attempts to mandate filtering in some form on computers in K–12 schools and public libraries between 1997 and 1999. Arguments supporting the bills introduced between 1997 and 1999 relied solely on legislators’ opinions. Some legislators made reference to research and/or journal articles, but they did not go so far as to hold hearings (Carney, 1998, 1999, 2000b).

Two bills that passed but were later found unconstitutional, the *Child Decency Act* (CDA II) and the *Child Online Protection Act* (COPA), had one thing in common: they both connected filtering with E-rate discount funds. Specifically, they stipulated that to be eligible to receive these funds, schools and libraries must install a filtering device. A byproduct of COPA was the formation of the COPA Commission in 1998 to study the issue of safety for children using the Internet. The resulting recommendations from this Congressional Advisory Committee provided data that was later used to pass CIPA. The COPA Commission consisted of nineteen members and included interests from Internet based companies, security software systems, the Department of Commerce, university professors, faith-based organizations, the Department of Justice, the Disney Corporation, and freedom of speech advocates. The purpose of the

Commission was to study methods to help reduce access by minors to certain sexually explicit material, defined by the COPA as harmful to minors. The commission concluded that no single technology or method could effectively protect children from harmful material online. The Commission recommended methods that included public education, consumer empowerment, increased law enforcement, industry action to develop best practices for online Internet Service Providers, and that the commercial adult industry take voluntary steps to restrict minor's access to adult content.

The House and Senate introduced versions of the Children's Internet Protection Act (CIPA) in 1999. CIPA went through three revisions before passage in the fall of 2000 and was subsequently signed into law by President Clinton. Unlike the previous legislative attempts to mandate Internet content filtering, there were hearings to bolster support for CIPA that included oral testimony and the presentation of the COPA Report. A review of the CIPA hearings shows that recommendations from the COPA report suggesting tighter controls on the Internet were included in the legislation but that the recommendations calling for media literacy education were not included in CIPA. Hearings also included testimony from the *Internet Safety Association* (ISA) and from conservative religious organizations (Kingrey, 2005; Willard, 2002a).

There was speculation from First Amendment advocates that CIPA passed because it was embedded in a larger omnibus Appropriations bill along with ten other bills of varying impact (M. C. Heins, 2001). When Clinton signed CIPA into law, a long list of stakeholders immediately began voicing their concern about Internet filtering (M. Heins, 2003; The Free Expression Policy Project, 2002; Willard, 2002c). Speaking out against mandatory filtering were the American Civil Liberties Union (ACLU), the American Library Association (ALA), and the National Coalition Against Censorship (NCAC).

In 2001, the American Library Association (ALA) and the American Civil Liberties Union (ACLU) filed a suit with several state and local library associations to challenge the library provisions of CIPA (*American Library Association et al. v. United States*, 2002). No suit challenged the school provisions of the rule. The language used to defend the bill had changed from “making the Internet safe” to *protecting children*, making it difficult for educators to stand up and publicly denounce the bill (Carney, 1998). The ALA filed suit because it represented library users. Many other “watchdog” organizations formed and/or joined the fight against the CIPA ruling, including Netizen, Peacefire, The Free Expression Policy Project, The Electronic Frontier Foundation, and The Electronic Privacy Information Center.

A three-judge federal panel ruled in favor of the plaintiffs and declared CIPA unconstitutional. Williams explains the court reasoning:

Under the First Amendment doctrine, content-based restriction on access to public forums trigger “strict scrutiny” – a form of constitutional analysis that requires courts to strike down challenged restrictions, unless the government can show that they are a “narrowly tailored” means of furthering a “compelling” governmental interest (Williams, 2004).

Furthermore, the court agreed with the ALA’s argument that the CIPA provision permitting libraries to disable the filtering software when requested by a patron did not succeed in making the law “narrowly tailored” so as to pass constitutional muster. The court ruled on May 31, 2002 that “any public library that complies with CIPA’s conditions will necessarily violate the First Amendment” (Williams, 2004). This ruling reaffirmed previous decisions on law attempting to restrict Internet access (COPA, CDA I & II) and provided hope that public schools would be able to take on CIPA as well.

Responding to the District Court’s ruling that CIPA was unconstitutional, Willard offered the clear opinion that this decision would eventually extend to schools:



It is probable, given the environment of schools that the standard of analysis that will be applied will be that such use must be reasonably related to legitimate pedagogical concern and not result in viewpoint discrimination. However, the findings and analysis of the ALA case provide important insight into the question of the constitutionality of the use of commercial filtering software in schools (Willard, 2002c).

The U.S. government appealed the decision of the Pennsylvania court and in June 2003, the Supreme Court reversed the decision, upholding CIPA (*United States v. American Library Association*, 2003). Chief Justice Rehnquist's plurality opinion for four of the nine Justices asserted:

Library patrons have no right to unfiltered Internet access – that is, filtering is no different, in principle, from librarians' decisions not to select certain books for library shelves... Because the government is providing financial aid for Internet access, it can limit the scope of the information that is accessed... If erroneous blocking of "completely innocuous" sites creates a First Amendment problem, "any such concerns are dispelled" by CIPA's provision giving libraries the discretion to disable the filter upon request from an adult (*United States v. American Library Association*, 2003).

These rulings left public libraries with the option of either installing software to filter Internet content on library computers or foregoing Federal aid that helped defray telecommunication costs and program support.

#### *Complying with CIPA*

CIPA requires that libraries and schools “provide reasonable public notice” and hold at least one public hearing or meeting to address the proposed “Internet Safety Policy.” The policy must include the installation and use of a “technology protection measure,” which is defined as, “a specific technology that blocks or filters Internet access to visual [not text] depictions that are obscene, child pornography, or harmful to minors” to receive Federal E-rate funding. Other funds tied to the CIPA are Title IID funds from the Elementary and Secondary Education Act (ESEA/No Child Left Behind), administered by the U.S. Department of Education; and the Library Services & Technology Act funds (LSTA) (Carney, 2000a).

To comply with CIPA, all Internet access must be filtered, whether minors (under 17) or adults are using the computer and regardless of how many computers with Internet access the library or school provides. Filters may be disabled for adults conducting *bona fide* research (American Library Association, 2000). However, CIPA's filtering requirements are more restrictive for minors than for adults, so libraries and schools may choose to implement different

settings for the filters depending on whether adults or minors are using the computer. The law states that when minors are using the Internet, access to visual depictions that are obscene, contain child pornography, or are considered harmful to minors must be blocked or filtered.

The definitions for these categories are somewhat vague and left open to interpretation. To define obscenity, the court usually uses a three-part test as defined in the landmark case of *Miller v. California* (1973). This test examines whether the average person, applying contemporary community standards, would find the work (taken as a whole) appealing to the "prurient" (disapproving) interest; whether the work depicts sexual conduct in a patently offensive way; and whether the work (taken as a whole) lacks serious literary, artistic, political, or scientific value (American Library Association, 2000).

CIPA refers to the definition of child pornography as defined in United States Code, 18 U.S.C. 2256. "Child pornography" means any visual depiction, including any photograph, film, video, picture, or computer or computer-generated image or picture, whether made or produced by electronic, mechanical, or other means, that involves the use of a minor engaging in sexually explicit conduct or appears to be of a minor engaging in sexually explicit conduct. In addition, visual depictions that have been created, adapted, or modified to appear as though an identifiable minor is engaging in sexually explicit conduct must be

filtered. The same holds true in cases where a visual depiction is distributed or promoted to convey the impression that the material is a visual depiction of a minor engaging in sexually explicit conduct (American Library Association, 2000).

CIPA defines “material that is harmful to minors” as any matter of any kind taken as a whole with respect to minors that appeals to a prurient interest in nudity, sex, or excretion. It also includes matter that represents an actual or simulated sexual act or sexual contact, actual or simulated normal or perverted sexual acts, or a lewd exhibition of the genitals if it, taken as a whole, lacks serious literary, artistic, political, or scientific value (American Library Association, 2000).

Complying with CIPA has financial implications. Schools and libraries cannot use E-rate funds to pay for the filter but they can apply for LSTA funds to pay for filtering software (American Library Association, 2000). In most cases, schools and libraries entered contract with outside providers, with costs ranging between \$2 and \$6 per student.

### *How Filters Work*

Filters can be set up to block content by several methods and most companies use one or more of the methods described in this section to block Internet sites. This section explains how Internet filtering software works to meet CIPA requirements and reviews considerations about Internet filters. First, the section reviews various filtering methods: *black listing*, *white listing*, *keywords*, *images*, or *by use*, and summarizes the pros and cons of each method. Secondly, the section reviews different ways filtering software can be installed and updated, and explains how changes may be made to correct mistakes when the filter either overblocks or underblocks content. The section concludes with considerations for evaluating Internet filtering software.

Filtering products use the following terminology to describe the methods available for selecting content to be blocked. Many filtering products use a combination of the following methods to filter Internet content.

*Black Listing.* The filter company creates lists containing the addresses (URLs) of web sites or Internet Protocol (IP) addresses identified as unsuitable or containing inappropriate material. If a web page matches one of the sites on this list, the filter denies access to the user. Black lists place web sites into one or more categories, such as “violence,” “pornography,” or “extreme.” Using keyword such as “sex” to generate black lists saves time, but increases the

probability of unnecessarily blocked sites. For example, the filter will block information from sites that contain word combinations such as “Chicken *breast*, Anne *Sexton* or Mars *Explorer* (Electronic Frontier Foundation, 2002; M. Heins, 2003; M. Heins, Cho, C. , 2001; Kranich, 2004; The Library. Network, 2000; Youth Free Expression. Network, 2003).

*White Listing.* The filter contains a “white” or “inclusion” list containing the URLs of web sites or IP addresses of allowable sites. The filter blocks all web sites that are not on this list. This type of filtering is very restrictive but is generally effective in producing content that meets the CIPA requirement (Electronic Frontier Foundation, 2002; M. Heins, 2003; M. Heins, Cho, C. , 2001; Kranich, 2004; Youth Free Expression. Network, 2003).

*Keyword.* Lists of content keywords and/or phrases contained within a web page deny the user access to the site. With this method, many unnecessary sites are blocked, but pornographic sites without words could pass through the filter. *Keyword* filtering has the same pitfall as *black listing* because it will unnecessarily block certain word combinations. This method of filtering only blocks text. It will not block unlabeled graphics, even though the CIPA law specifies that inappropriate pictures must be filtered (Electronic Frontier Foundation, 2002; M. Heins, 2003; M. Heins, Cho, C. , 2001; Kranich, 2004;

Youth Free Expression. Network, 2003).

*Image.* The filter analyzes images and blocks them, if, for example, they contain a large percentage of flesh-colored images. This method for blocking Internet content results in a high percentage of overblocking (Electronic Frontier Foundation, 2002; Free Expression Policy Project, 2003; M. Heins, 2003; M. Heins, Cho, C. , 2001; Kranich, 2004)

*Filtering by use.* This method restricts access to information by the type of program used. For example, the content filter may deny access to email, chat, and other interactive services such as online banking. It is difficult to use this method without restricting access to legitimate sites. An example of a legitimate site blocked using this method might be access to an online, real-time homework help site (The Library Network, 2000).

Many content filtering companies use a combination of these methods, and allow the user or the system administrator to edit the lists that contain URLs, IP addresses or keywords. A filtering company may use humans, robots, or a combination of both to create lists. Robots are the least reliable method for choosing sites to block (The Library Network, 2000)

Filtering software can be client-side, server-side, or determined by the Internet service provider (ISP). Installations of client-side filters on individual workstations usually occur in homes and small work settings. Updates and

maintenance require regular attention and the filter becomes unreliable if not maintained on a regular basis. Server-side filters are installed on a central server and are maintained by the company providing the Internet content filtering. Updates occur automatically and on a regular basis. Some ISPs provide filtered Internet access. In this case, the user has very little control over the sites that are blocked (The Library Network, 2000).

There are several factors to consider when evaluating Internet filtering software. Such software becomes more reliable when less overblocking and underblocking occurs. Filtering software has a greater reliability factor if it is possible to block by category and to turn off keyword blocking. In addition, reliability increases if it is possible to override blocked sites, to locally unblock sites, and to locally modify locked lists so that sites may be added and removed as needed (The Library Network, 2000). Most Internet filters block more than is required by the CIPA law. If the user wishes to make sure that filters do not overblock or underblock content, the user must review and adjust the filter configuration to ensure that the filter is set to block only what is necessary to comply with CIPA. In order to avoid overblocking or underblocking, the user must test the filter for accuracy on a regular basis. The Best Practices section of the California State Library website states that there should be a person assigned to monitor blocked sites and to adjust the filter as needed when allowable sites



are blocked. It also states that schools and libraries should not rely upon patrons' complaints to determine if the filter is working because experience shows that most patrons do not complain when a site is blocked (California: State Librarian, 2006). Most Internet filtering companies use several methods to filter content so that schools and libraries can meet the CIPA requirements. None of the methods is foolproof and both overblocking and underblocking occur. Key factors in ensuring the least restrictive information access environment are having the ability to make adjustments locally, using server-based installation, and monitoring the filter's effectiveness on a regular basis (California: State Librarian, 2006).

#### *Educators' and First Amendment Advocates' Reactions After CIPA*

As noted earlier, First Amendment advocates and opponents of Internet software filtering may have been overconfident that CIPA would not become law because earlier bills to regulate the Internet were found to be unconstitutional. Educators were also slow to react to legislative attempts to mandate Internet content filtering and it appears that the importance of teaching students "media literacy," and how to use the Internet "safely" did not become widespread until after CIPA passed.

Four major reports that were released shortly after CIPA passed challenged mandated Internet content filtering and instead advocated for policies and

procedures to educate Internet users on how to make decisions. First Amendment advocates Marjorie Heins & Christina Cho (2003) issued a report to inform the public and policymakers on the importance of media literacy education. The report stated that media literacy education should be embedded in legislation and educational standards and that media literacy can relieve pressure for censorship:

Media literacy is far better than censorship, not only for those concerned about troublesome media messages but for everyone committed to modern education, intellectual freedom, and the healthy development of youth

(Heins, Cho, 2001).

Educator Nancy Willard continually stressed the importance of helping young people learn to do what is right, regardless of the risk of detection and punishment. She maintained that the two biggest problems with filtering are that filters raise a level of false security, and that their use may violate First Amendment rights (Willard, 2000, 2002c).

Perhaps the most referenced of this series of reports were those authored by Dick Thornburgh, the former Attorney General under President Ronald Reagan, in 2002 and 2004. Thornburgh did not denounce filters altogether but stated that there are three elements to a balanced framework for protecting children online: public policy and law enforcement, technology, and education.

By public policy and law enforcement, Thornburgh referred to adhering to, and prosecuting those who violate, laws concerning pornography. He stated that prosecutions decreased during the very time that Internet usage exploded. He backed the recommendations from Heins, Cho, and Willard, supporting public policy that promoted media literacy and Internet safety education. Thornburgh acknowledged that using technology-based tools such as filters may be common but the tradeoff is that they may filter out large amounts of appropriate material. Thornburgh stated that filters are often used to relieve “political pressure” and that the cost of installing and maintaining filters sometimes outweighs what schools and libraries receive in federal funds. He also echoed Willard’s recommendations for increased media literacy education, noting that Internet safety education is analogous to safety education in the physical world. Thornburgh supported the importance of learning how to evaluate the content of media messages and stressed that none of these strategies are inexpensive. He compared dangers of the Internet to children and the dangers of a swimming pool:

Swimming pools can be dangerous for children. To protect them, one can install locks, put up fences, and deploy pool alarms. All of these measures are helpful, but by far the most important pool protection measure for children is to teach them to swim” (Thornburgh, 2002).

Thornburgh's proposed strategies as well those from Willard and Heins, were ignored for the most part by Congress when they drafted CIPA; the only strategy CIPA included was to require filtering on computers.

#### *Issues Related to Internet filtering*

There are many issues related to the use of Internet filters, including the accuracy of the filters, the impact that Internet filters may have on the "digital divide," and the impact that Internet filtering may have on meeting educational standards.

Prior to CIPA's enactment, filtering opponents focused their concern primarily around three issues: the inaccuracy of filters, whether or not filters violated First Amendment rights, and the potential impact that filtered computers would have on the digital divide (Heins, Cho, & Feldman, A., 2006). The term "digital divide" refers to the division caused by economic and ethnic groups' unequal access to levels of technology, learning, and information (Heins, 2003). One other concern that surfaced after CIPA was the involvement that faith-based organizations may have had in CIPA becoming law. First Amendment advocate and educator Nancy Willard raised the concern that there was bias within the COPA commission because it included representation from faith-based organizations that also had connections with the filtering companies. One example was the testimony heard from CEO and President of N2H2, Peter

Nickerson, (1999). After CIPA became law, N2H2 became one of the primary companies selling filtering products to public schools. At the time of Nickerson's testimony, the primary clients of N2H2 were religious organizations, such as FamilyClick, an Internet Service Provider (ISP) run by Tim Robertson, son of Pat Robertson of the Christian Coalition; Christian Purity; and What would Jesus View (Willard, 2002a).

Once CIPA became law and established specific legal criteria for filtering, research shifted from observational and anecdotal data to statistical analysis and formal research studies. Studies conducted to demonstrate the effectiveness of filters before 2001 were mostly anecdotal. However non-scientific, they repeatedly suggested that filtering software did not work for the intended purpose of meeting the CIPA rule. According to these studies, filters set at the maximum settings deny users information by overblocking. They also underblock sites, allowing access to sites that should not be accessible according to CIPA (Free Expression Policy Project, 2003; M. Heins, Cho, C. , 2001; Tramontana, 2002; Willard, 2002a, 2002b, 2002c). Most filters use a keyword method to block inappropriate material as defined by CIPA. As noted earlier, this method relies primarily on mechanical blocking by keywords or phrases such as “over 18,” “breast,” or “sex,” (Free Expression Policy Project, 2003; M. Heins, Cho, C. , 2001). Some companies also have employees who review web sites;

however, there appears to be a high rate of subjectivity in this method because of religious and/or political attitudes reflected by manufacturers in blocking decisions (M. Heins, Cho, C. , 2001; Lau, 2002). N2H2 is a filtering software company that has a significant presence in public schools across the country. It originated as a provider for religious groups and encourages those groups to recommend sites to block. The Edelman Report, researched over 6,000 URLs and found that the Alan Guttmacher Institute, an Affiliate of pro-choice Planned Parenthood Federation of America and research organization on issues related to sexuality, AIDS Vancouver Island: Welcome, and the Coastside Social Group, a networking group for gays, lesbians, family and friends are three of the many sites that may be blocked by N2H2 because their content is not consistent with conservative religious doctrine (Edelman, 2002; Willard, 2002a).

A major consideration with all of these methods is that the majority of software companies do not reveal their criteria or process for categorizing and blocking web sites. This makes it difficult for purchasers to make decisions when selecting a filter (California: State Librarian, 2006; M. Heins, Cho, C. & Feldman, A., 2006). Part of the value of a filter is the number of web sites categorized because the filter becomes more accurate with the identification of more categories. An Internet filtering company is not required to use information specialists to identify sites to filter and Internet filtering companies typically use

automated methods to identify and classify the 3 billion web pages on the Internet (California: State Librarian, 2006).

There are more than five million new web pages added each day to the Internet and they have an average life span of 44 to 90 days. Only about 1.5% of Internet sites are considered pornographic (Kranich, 2004). Filters set at the most restrictive setting block about 75% of the pornographic sites, while at the same time blocking at least 20% of the legitimate sites available at any given time (Kranich, 2004). The sheer number of Internet sites and the rate at which they grow, change, and expand daily make it impossible to have a system in place that would be able to block sites based purely on the CIPA law. As a result, those opposing CIPA stipulate that filters simply do not work (Board, 2002; Free Expression Policy Project, 2003; M. Heins, Cho, C. , 2001).

A study conducted by Peacefire in 2000 found that a commonly used filtering software package, Cyber Patrol, blocked the following sites as “sexually explicit”: Amnesty International Israel, The Canadian Labour Congress, the American Kurdish Information Network, the College of Humanities and Social Sciences at Carnegie Mellon University, and Peacefire itself (M. Heins, Cho, C. , 2001). Another study found that the Smartfilter content filtering software system blocked a variety of web sites relating to “extreme” sports, such as a page on desert off-roading and a site dedicated to rock climbing. Additional blocked sites

included one for gay and lesbian Mormons and 64 newsgroups ranging from one on Mesoamerican archaeology to a discussion group on the Baha'i religion (Peacefire & EPIC, 2000). SmartFilter also has been found to block the site "BabelFish," a foreign language web site translation service (Bromberg, 2002; M. Heins, Cho, C. , 2001).

A joint report produced by Peacefire and Epic revealed that the software product N2H2 found 48 educational and political web pages blocked under the setting "mature content," a category schools typically choose to block. This category intended to block "sexual content, violence, drugs, hate, and profanity." Two blocked sites were: "How a Bill Becomes a Law," a brief lesson plan for teachers to help them explain the legislative process to their students, and "Don't Tread On Me," a site inviting message postings about right-leaning political candidates (Peacefire & EPIC, 2000).

Research after CIPA began using statistical approaches to determine filtering effectiveness. A research study conducted under the direction of Professor Paul Resnick at the University of Michigan analyzed methods used for analyzing web sites, pointing out the pitfalls, and developing better research techniques. Resnick recommended avoiding bias when analyzing the effectiveness of Internet filters by: using a process for collecting target group sites that can be duplicated, using a large enough sample size to produce valid



results, and measuring (identify) overblocking (percentage of acceptable sites wrongly blocked,) and underblocking (percentage of sites that should be blocked) (Resnick, 2004). This process will demonstrate how many overblocks there are compared to correct blocks but will not provide data on how the filter works overall.

In 2001 and 2006, the National Coalition Against Censorship released quantitative studies on the most commonly used filters (M. Heins, Cho, C. , 2001; M. Heins, Cho, C. & Feldman, A., 2006). The first report reviewed 19 software filters. The second report contained evaluation and commentary of 22 studies and used the criteria identified by Resnick to inform readers of the probable validity of the research conducted about filters after 2001. The report also evaluated the effectiveness of Internet content filters between 2001 and 2006. The report stated that identifying better ways to evaluate web sites is useful but the bottom line is the resulting statistics are still open to interpretation. Even an error rate of 1% can mean that millions of sites are wrongly blocked. Despite identifying flaws in data collection and analysis within virtually every study, the report concluded that “even at their narrowest setting, filters block much more than CIPA requires” (Heins, Cho, & Feldman, A., 2006). Both studies found that the extent of overblocking depended on the filter manufactures and on the settings chosen by the school or library, and that the “packages” offered by

manufactures far over-reach the CIPA requirement. Findings from the 2001 report on the most common filters include the following summary:

Bess, manufactured by N2H2 provides 29 categories of blocked content in its “Typical School Filtering” setting, ranging from “Adults Only and Alcohol” to “Gambling,” “Personals” and “Tasteless/Gross.” Four additional settings are also “History,” “Medical,” “Moderated,” and “Text/Spoken Only.” Under these settings, researchers found examples of the following sites blocked: Friend of Lulu ([friends-lulu.org](http://friends-lulu.org)), a site promoting comic books for girls, a portion of the Columbia University Heath Education Program site, and *Time* magazine’s “Netly News,” which has reported, positively and negatively, on filtering software (M. Heins, Cho, C. , 2001).

Table 2 reveals the major findings conducted between 2002 and 2006 on the effectiveness of Internet content filters. All seven reports found that Internet content filters set at their most restrictive settings blocked material not mandated by CIPA.

Even though data emerged that less restrictive filter settings allowed greater access to information, many schools and libraries retained the standard filter settings recommended by filtering companies. Librarians found that “public pressure” and the lack of an organizational decision system inhibited them from

choosing only the filtering categories required by CIPA (Oder, 2003; Willard, 2002c). One librarian stated that she felt under less scrutiny and less likely to run into trouble if she chose the standard package rather than be selective (Minkel, 2002).

In an informal survey conducted in 2002 of Minnesota state technology leaders, seven of the ten educators surveyed stated that they chose the filtering software “standard package” because they did not have a mechanism, such as a committee, to adequately review the categories and decide which categories to choose or eliminate. They stated that they felt safer in today’s political climate to err on the side of caution (Finsness, 2002).

Table 2

## Summary of Significant Findings Concerning Internet Content Filters

Organization	Source	Major Findings
Center for Advanced Technology in Education	(Willard, 2002a)	Reviewed eight filtering companies. Found filtering products used in schools prevented students from accessing certain materials based on religious or other inappropriate bias
The Free Expression Policy Project	(The FEP Project, 2002)	The Court found in <i>American Library Association v. United States (2002)</i> filters overblock/underblock. Filters expand the “digital divide” when demographic groups without unfiltered access are denied information.
Kaiser Family Foundation	(Oder, 2003)	Filters not set at most restrictive levels “can effectively block pornography without significantly impeding access to online health information.” Restrictive settings blocked 24% of health sites and 50% of “safe sex” sites.
Internet Filters: A Public Policy Report	(Heins, 2006)	Updates original finding from 2001 and concurs “filters are especially dangerous because they block large amounts of expression in advance.”
Online Policy Group /Electric Frontier	(OPG & EFF, 2003)	Least restrictive filter settings blocked .5% to 5 % results for state mandated curriculum. Most restrictive settings blocked more than 70% more results based on state curriculum.

One school district formed a committee of stakeholders (teachers, technical support, media specialists, administrators and curriculum specialists) to review the various categories offered by its content filtering product. The committee determined which categories to block and presented the recommendation to the cabinet of higher-level administrators. The committee recommended using only the three categories required by law. The cabinet accepted this recommendation (Finsness, 2002). Even with this careful process, students and teachers found that they could not access some sites they legitimately used for schoolwork before the installation of the filter.

Another concern with CIPA was the effect it would have on the already recognized “digital divide.” Those who fall into the digital divide may be impacted more by mandatory filtering than any other group of stakeholders because they often do not have access to unfiltered computers. The digital divide puts Black and Latino students at a distinct disadvantage, as well as students living in rural areas without easy access to unfiltered computers (Heins, 2003).

In a 2004 report from the Department of Commerce, only 54.6 % of U.S. households had Internet connections (54.1% in households with a personal computer or laptop, plus an additional 0.5 percent using a mobile telephone or some other home Internet access device). It may be reasonable to infer that since the quality of data now available on the Internet almost requires a high-speed

connection, the statistics identifying the limited number of homes with high-speed access have identified an even larger digital divide than was previously measured. The report stated that although 31.2% of households earning less than \$15,000 in 2003 had access to the Internet, only 7.5% had broadband (i.e., high speed) access at home. Nearly 85% of homes with income levels of \$75,000 or more reported having some type of Internet access, with close to half (45.4%) stating that they had broadband access. Another new study in 2004 reported on those with income levels of \$150,000 or more and found in this group, 86.1% had some kind of Internet access, with 57.7% of those having broadband access. An updated report stated that Broadband availability continues to increase across all income levels (Turner, 2005). Between March 2005 and March 2006 there was a 40% increase in broadband use among those earning less than \$30,000 per year (Federal Communications Commission, 2005; Maddox, 2006).

Consumer advocates disagree with these statistics, stating that the data gathered using zip code information does not necessarily represent the income level of households with Internet access. Likewise, the Department of Commerce report (2004) identifies broadband access by income level and does not differentiate whether that access is at home, at work or in a public location. The Free Press (2005, 2006) reports that America's digital divide between rich and poor areas, and between urban and rural areas, shows no sign of closing. The

report cites several statistics highlighting the disparities. For example, residents in urban areas are nearly twice as likely to have home broadband access than those living in rural areas. Broadband thus is still very dependent on socioeconomic status. Although six out of every 10 households with incomes above \$100,000 have broadband access, only one out of 10 households with incomes below \$30,000 reported having broadband access (Turner, 2005, 2006).

Going beyond the common definition of a digital divide, a report from the Colorado Department of Education concluded that “it is not just the poor and under-educated that may not have Internet access, ... libraries provide the only Internet access for a substantial portion of every age group” (Heins, 2003). In any case, it may be fair to conclude, as did the National Telecommunications and Information Administration, “that we are approaching the point where not having access to these (Internet) tools is likely to put an individual at a competitive disadvantage and in a position of being less than a participant in the digital economy” (Heins, 2003).

Another area of concern is the possible effect Internet content filters have on instruction. Heins (2006) noted that “CIPA, the law mandating filters in schools and libraries that receive federal aid is not likely to be repealed very soon, nor are most school districts or libraries likely to throw away filters despite their dangers and flaws.” She and others have begun to shift focus to the

question, “how does CIPA actually affect learning?” (Electronic Frontier Foundation & Online Policy Group, 2003; M. Heins, Cho, C. & Feldman, A., 2006).

Nancy Willard (Willard, 2002a, 2002b, 2002c) and the American Library Association (ALA) (*American Library Association et al. v. United States*, 2002), have stated that, because of the perception that filters “protect” kids, it is difficult for teachers themselves to speak out against filters until substantial evidence is found to support the restrictions that filters place on accessing information. Anecdotal evidence from Minnesota teachers suggests that they feel helpless when they encounter a blocked site during their teaching day. For example, in one informal study, teachers stated that they often found sites at home, for lessons that were later blocked at school. The teachers did not have authority to “unblock” the sites themselves (Finsness, 2002). The media coordinator from one Minnesota school district stated that the use of the high school computer lab had decreased over 30% during the three-year period since filtering has been in place (St. Peter, 2004). When questioned, students in this school said that they were frustrated because they could not find information on the Internet and preferred to use their unfiltered computer at home. In another Minnesota school district, a technology integration specialist made three requests and waited six weeks until the requests to unblock a site were fulfilled by a colleague who, ironically was



located just across the hall (Yoder, 2004). Heins stated that “in the year and a half since CIPA was enacted, our organization has received letters from disgruntled teachers across America” (Heins, 2002). Heins reports:

As a California high school teacher who called filters a frightening form of “modern day censorship” noted, ‘I have been unable to ask questions about filtering policies without being made to feel that I must be looking up porn sites on my lunch break’ (Heins, 2002).

Heins noted that students also have written to express their frustration. Student research topics rendered useless because of filters include school violence, teen pregnancy, drug and alcohol abuse, AIDS, and mental illnesses (Heins, 2002). Students have formed action groups and created mechanisms to voice their frustration with CIPA. Two such groups are the Youth Free Expression Network (YFEN) and Wiretap. Both have web sites with information educating their web readers about the problems they find with filters. YFEN has a letter template addressed to legislative officials protesting CIPA (Kender, 2002; Youth Free Expression Network, 2004). Articles within these sites reflect the positions of the ALA, ACLU, and the National Coalition Against Censorship (NCAC) (Leibrock, 2000; Youth Free Expression Network, 2003). Students state that they feel the effect of censorship and loss of intellectual freedom when they are able to find the information they are looking for on an unfiltered computer

but not in institutions (schools, libraries) designed to provide access to education and information (Leibrock, 2000; Youth Free Expression Network, 2003). High school student Eric Dorney questioned the effect Internet content filtering had on Intellectual Freedom and censorship. He posted form letters on the web that readers could link to “send your members of Congress (or school board) a fax or email opposing federal mandates for Internet blocking in schools” (Dorney, 2002). Writer David Kender referred to the campaign against filtering software organized by Peacefire stating that, “we shouldn’t raise people to blindly accept rules [without being informed of] the reason behind them” (Peacefire, 2000).

Intellectual Freedom advocate, Marjorie Heins wrote:

The time-honored practice of banning and burning books is alive and well in America's education system today, albeit with a 21st century twist. In an effort to shield innocent minds from online "smut," the Children's Internet Protection Act -- or CIPA -- has mandated that all public schools and libraries using federal funds for Internet use or connections must install a filtering system by this July or risk losing the aid altogether. Not only does this directly impinge upon the free expression rights of youth and adults, it subverts the education process as a whole (Heins, 2002).

The Electronic Frontier Foundation (EFF) and the Online Policy Group (OPG) (2003) conducted a study to measure the extent to which blocking software impedes the education process by restricting access to web pages relevant to the required curriculum. The study examined N2H2 (Bess) and SurfControl, two of the most commonly used filtering software products used in schools across the country. Testing nearly a million web pages, the researchers found the following: Schools that implement Internet blocking [filtering] software with the least restrictive commonly used settings will block between 0.5% and 5% of search results based on state-mandated curriculum topics.

- Although curriculum topic categories more often blocked by N2H2's Bess product in an East Coast high school include such topics as the Klan (36% of web pages related to this curriculum topic blocked), firearms (50%), drunk driving, slavery, genocide, and perjury (33%), they also contain topics such as pogo-stick (46%), comedy (42%), personal care (32%), likes and dislikes (32%), and short poems (32%).
- Schools that implement Internet blocking [filtering] software with the most restrictive setting block 70% or more of search results based on state-mandated curriculum topics (Electronic Frontier Foundation & Online Policy Group, 2003).

Based on the findings of the study, the researchers concluded that the use of Internet filtering software does not necessarily ensure school compliance with requirements of CIPA. Filtering software may damage significant educational opportunities for students by unnecessarily blocking student access to web pages that are directly related to state-mandated curricula and by restricting broader inquiries of both students and teachers (Electronic Frontier Foundation & Online Policy Group, 2003).

*Meridian*, an electronic journal dedicated to “research and practice of computer technology in middle school classrooms” sponsored another study where middle school students felt that legitimate sites are blocked (Simmons, 2005). Another investigated the experiences of students conducting term paper research using filtered Internet access in a suburban media center. The study did not make a correlation with mandated standards but findings indicated that filters used in the media center blocked legitimate, constitutionally protected speech. In addition, students recognized how they would be disadvantaged if they were not able to go home and use their own unfiltered computers (Sutton, 2005).

A fourth study conducted in Canada using focus groups of rural Saskatchewan elementary and secondary teachers concluded in part that “focus group interviews show that filtering Internet access in schools leads to lost

education opportunities...suppressed ideas, incomplete research and short-changed students” (St. Onge, 2004) This conclusion supports the work of Callister:

Filtering operates in opposition to what students need to learn in school: to discern, discriminate, synthesize, and evaluate. How can students learn to be responsible, to make good social and intellectual choice, if those choices are made for them by filtering the information they can access. It is difficult to teach young people self-control and judgment by denying them access to the very things about which they need to exercise critical judgment (Callister, 2004).

In addition to any First Amendment questions about the legitimacy or constitutionality of CIPA, research shows that Internet filters often block much more than is necessary to comply with CIPA’s requirements. When overblocking occurs, the sites blocked often consist of legitimate information needed by students and teachers and, sometimes, even necessary information required to complete required state standards. Additionally, students who do not have access to unfiltered computers may be unable to locate the information needed to complete assignments, potentially creating an even larger digital divide.

*Conclusion*

Led by John Dewey, the progressive era in education existed in our country from the late 19th century through the mid-20th century (Hickman, 2001). Educational philosophy shifted during the 1950s to standards-based education. The last quarter of the 20th century brought about a national expectation that each state establish increased measures of accountability by adopting academic standards for all students to achieve in order to graduate from high school (U.S. Department of Education, 2007). During this same period, the Internet expanded and became an educational tool and source for information. This unregulated tool was challenged and, as a result, CIPA became a mandate to filter content on school and library computers. The connection between an increased demand to standardize education and a mandate to limit information on the Internet is reflected in this statement from Dewey (1916):

Lack of the free and equitable intercourse which springs from a variety of shared interests makes intellectual stimulation unbalanced. Diversity of stimulation means novelty, and novelty means challenge to thought. The more activity is restricted to a few definite lines -- as it is when there are rigid class lines preventing adequate interplay of experiences -- the more action tends to become routine on the part of the class at a disadvantage, and capricious, aimless, and explosive on the part of the class having the

materially fortunate position (Dewey, 1916).

Current curricula is structured for students to master assessments that are designed around discipline-based knowledge in core curriculum subjects (National Center on Education and the Economy, 2006). A recent report from the National Center on Education and the Economy (NCEE) (2006), cites information that shows a decline during the past 30 years in our educational system's ability to produce students that are ready for college, able to complete college, and/or have the skills that the commission deems necessary to compete in the 21st century. The skills outlined in the NECC report are remarkably similar to those stressed by Dewey: "creativity and innovation, facility with the use of ideas and abstraction, the self-discipline and organization needed to manage one's work and drive it through to a successful conclusion, and the ability to function well as a member of a team." The NCEE report outlines a new direction for American education: to improve graduation rates, increase college participation, and prepare students to be life long learners. NCEE maintains that this is necessary for the United States in order to create a work force that is capable of maintaining our global competitiveness (National Center on Education and the Economy, 2006).

The validity of the recommendations in the NCEE report remains to be seen, but the identification within this report for our students to become better

critical and creative thinkers is supported by many current educational researchers and writers who agree that the advent of technology creates an even greater need to develop these skills (Cotton, 1991). Kathleen Cotton, education writer for the Association for Supervision and Curriculum Development (ASCD) and the North West Regional Educational Laboratory, noted this correlation between technology and critical thinking even before the Internet was widely used in schools and before the topic of restricting the Internet became a public topic of conversation. Cotton began her report with the following quote by Deborah Gough, from the National Association of Elementary School Principals:

Perhaps most importantly in today's information age, thinking skills are viewed as crucial for educated persons to cope with a rapidly changing world. Many educators believe that specific knowledge will not be as important to tomorrow's workers and citizens as the ability to learn and make sense of new information (Gough, 1991).

Cotton emphasizes the importance of developing thinking skills as an anticipatory set in her review of 56 articles on this subject by highlighting a framework for developing school materials that cultivate decision-making skills when complete information is available to the learner. Authors of this article state, "Thinking skills are necessary tools in a society characterized by rapid change, many alternatives of actions, and numerous individual and collective



choice and decisions” (Beyth-Marom, 1987). Cotton defines critical thinking in several ways and highlights three definitions that would also be compatible to Dewey’s definition:

- Reflective and reasonable thinking that is focused on deciding what to believe or do (Presseisen, 1986);
- The disposition of evidence in support of one’s conclusion and to request evidence from others before accepting their conclusions (Hudgins, 1986);
- The process of determining the authenticity, accuracy, and worth of information or knowledge claims (Beyer, 1985).

The need to develop creative and critical thinking skills has not diminished. Alfie Kohn (1999) and Susan Ohanian (2002) are in a growing group of educators warning that requiring students to learn many discrete facts lessens their ability to become creative, critical thinkers and problem solvers, skills they say students need to succeed and excel in the 21st century.

The correlation between being an effective, creative, critical thinker, and problem solver and using the Internet to conduct research may be best exemplified in Beyth-Marom’s 1987 study, which creates a framework for decision making when all information is available (Beyth-Marom, 1987). If students are not able to find information that represents multiple perspectives of

an issue, then they may not be able to develop the creative, critical thinking skills deemed necessary for the 21st century.

The objective of this literature review was to gain understanding of the educational and political events that led to CIPA and to summarize the issues concerning mandated Internet filtering in schools. The next chapter will outline the methodology for an extensive study that will examine three issues that intersect with Dewey's call to provide free and equitable resources.

## Chapter Three

### Methodology

The Children's Internet Protection Act (CIPA) requires school districts to install and use Internet content filtering software to qualify for certain federal funds (Caywood, 2001). The purpose of this study was to determine if the required Internet content filters limit secondary school students from accessing information they need to complete Minnesota State Academic Standards and, if they do, to identify how teachers and administrators respond when they find that students are denied access to information necessary to complete work assigned in order to meet those state academic standards. This study also investigated whether teachers have the media literacy and information literacy training necessary to understand the importance of teaching students how to access, analyze, and critique information from diverse perspectives. The study further investigated if teachers are informed about the role that media and information literacy skills play in preparing students for a future which we cannot predict (Dewey, 1897). The results of this study will provide information for school administrators about the effect filter settings may have on accessing information and about whether teachers feel they have the media and information literacy skills necessary to teach their students effectively.

This chapter describes the research design and the methodology used for the study. The data collection for this qualitative study included: 1) an initial survey to identify qualified school districts, 2) in-depth interviews and surveys of educators, and 3) URL checks using the company web sites of each of the Internet content filters used by the school districts to verify blocked web sites. The chapter begins with the major questions underlying the study, a discussion of the research design, and the criteria used to identify the participant population. The chapter then describes the data collection process, the questions used in the survey, and the interview design. The chapter concludes with a description of the data analysis process and the limitations of the study methodology.

This study was motivated by the following hypothesis: *School districts that adopt more restrictive Internet content filter settings may be restricting access to information students need to complete the requirements of Minnesota academic standards* (Minnesota Department of Education, 2007). In addition, restrictive Internet filter settings may restrict students' academic freedom (American Library Association, 2007) by censoring the Internet, a major information source noted for its current content and for presenting the multiple perspectives necessary for critical analysis.

*Specific Questions that Guided the Research*

1. Do Internet content filters limit secondary school students from accessing information and, if they do, to what degree does the level of filtering (highly filtered v. minimally filtered) used by a school district affect the ability of students and teachers to access information students need to meet Minnesota Academic Standards (Minnesota Department of Education, 2007)?
2. How do teachers and administrators respond when they find that Internet filtering software denies students' access to information necessary to complete assigned work in order to meet state academic standards?
3. Do teachers have the media literacy and information literacy training necessary to understand the implications of teaching students how to access, analyze, and critique information from diverse perspectives?
4. Are teachers informed about the role that media and information literacy skills play in preparing students for a future which we cannot predict?

*Design*

The researcher employed a mixed methods design to gather data for this study. Mixed methodologies are particularly effective for research that requires both quantitative and qualitative data. A mixed methods approach was deemed most appropriate for this study because a variety of quantitative and qualitative

data on Internet filtering was needed to get at the issues under consideration. Use of surveys allowed the researcher to gather data from prospective interview participants to determine if they were suitable and willing to participate in the in-depth interviews. Use of open-ended questions and personal interviews allowed the researcher to garner more detail about the experiences of teachers and technology administrators with Internet content filters and about their knowledge and application of media and information literacy skills.

The researcher then used Flanagan's (1954) Critical Incident Technique (CIT) to analyze interview data in order to answer the primary research questions. CIT is a qualitative method designed to draw out the most memorable aspects of an event or experience from the study's participants (Ruben, 1993). CIT evaluates a program or a service and uses questions that are usually in this format: *Remember a time when you had a successful (specific activity)? Please describe.* Or the negative: *Remember a time when you had an unsuccessful (specify activity)? What made it unsuccessful?* (M. L. Radford, 2006). An example of a question used in this study is, "*Recall a time when you were preparing a lesson*" an appropriate evaluation tool for this study because the researcher needed to gather data from the experiences of the participants as well as gather data from the technology that provides information.

Flanagan (1954) states that there are five key components to CIT:

1. General aims. Identifying the purpose of the study: What does the researcher want to find out? A researcher using CIT is looking to find out “precisely what it is necessary to do and not to do if the activity is to be judged successful or effective” (Fisher, 1999). In this case, the study’s purpose was to evaluate a service (or product; i.e. Internet content filters)
2. Plans and specifications. In this phase, the researcher determines from whom to gather critical incident data and the appropriate method for collecting that data (Meeder, 2005). In this case, the researcher began by identifying state academic standards that may be seen as controversial and that require the learner to compare, contrast, and analyze data. The important question to answer in this phase is, “*Who are the subjects from whom critical incidents will be collected?*” (Meeder, 2005) For this study, the researcher selected the teachers responsible for teaching the identified standards because they would be the primary source to accurately evaluate Internet content filters. District technology administrators were chosen as well because, even though they do not have influence over standards, they most likely select or recommend the filtering product, the level of restrictions, and the procedures to address how miss-identified

filtered content is handled. These decisions can affect what information students and teachers can access to meet the required standards.

CIT is a qualitative research method because it allows the researcher to make adjustments along the way and to explore emerging topics in depth (Orcher, 2005). A qualitative method such as CIT is preferred for new and emerging topics such as those involved in this study because it permits ongoing adaptation to unanticipated results (Orcher, 2005). Qualitative methods allow the researcher to create meaning out of the research rather than to react only to a preconceived hypothesis (Bogdan, 2003). Qualitative research draws from the philosophy of phenomenology in its emphasis on experience and interpretation (Merriam, 1998). This study relies on in-depth interviews because the inherent nature of interviews is phenomenological. Interviews provide data that reveal the participants' first-hand experiences (Merriam, 1998) and are highly descriptive, allowing the researcher to be flexible and to probe deeper into the responses at the time of the interview.

Data collection through interviews is labor intensive but has the advantage of providing researchers with opportunities to ask clarifying and/or probing questions in addition to the interview data, this study included telephone and e-mail surveys to save time and resources.



3. Collecting the data. It is necessary to develop data collection methods and a data collection instrument. It is highly recommended to audiotape interviews (with permission of the participants) (M.L. Radford, 1999). Phone interviews were taped for this study. It is helpful to begin the interview session with a positive experience (Flanagan, 1954). For this study, teachers were asked to recall a positive Internet search experience (a positive critical incident) and to tell what made it a positive experience before being asked to recall a negative Internet search experience (negative critical incident).

Additional specifications to consider include how much data to collect and when to collect it. Flanagan (1954) provided some guidance on sample size, indicating that it must be determined by the type of activity studied. This researcher decided to collect data midway through the school year because the teachers would be preparing to teach or in the process of teaching the identified standards. It was difficult to pre-determine the optimum sample size because the study specified inclusion of districts with both highly restrictive and minimally restrictive Internet content settings. One strategy used to determine sample size was to collect the minimum number of critical incidents and begin an analysis to

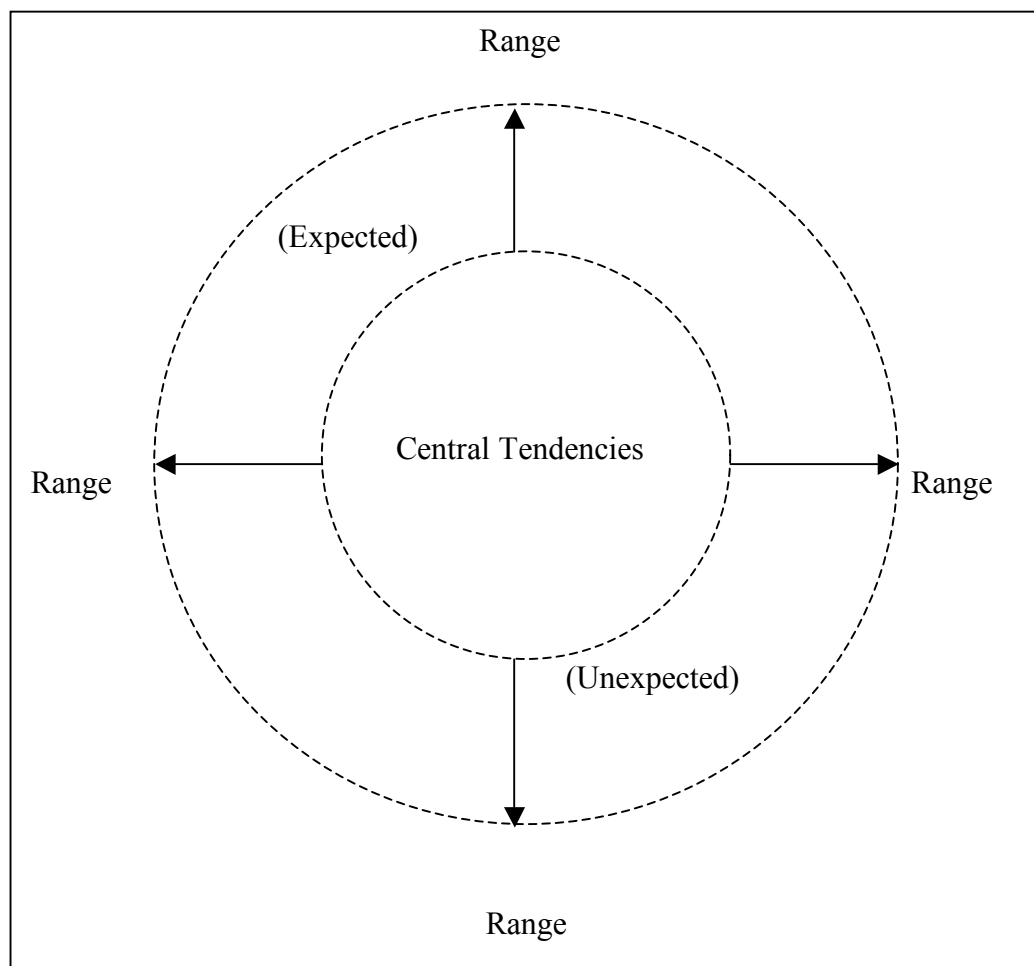
see if enough data emerged. If data were insufficient, data collection would continue. If not, data collection would stop (M. L. Radford, 2006).

Analyzing the data. The goal of analysis for a research project is to make sense of a large mass of data through data reduction techniques that summarize and describe the data efficiently (Fisher, 1999). Data should be transcribed from the audiotapes to a word processor or software package. Then each critical incident is carefully read and sorted using an organized system in which each critical incident is coded under a conceptual framework.

The researcher used the Chenail Qualitative Matrix (CQM) to analyze and report the interview and web search data (Figure 1). CQM makes it possible to sort ideas and report them into a simple conceptual framework (Cole, 1994). Data are organized in two concentric circles. The inner circle consists of “central tendencies.” Central tendencies describe how the data chunk together into common themes or categories. The “expected” and “unexpected” exist outside the inner circle. “Expected” refers to data that confirm the ideas of authors in the literature review or the researcher’s assumptions. “Unexpected” refers to data that depart from authors’ ideas in the literature review or the researcher’s

assumptions. In addition, around the circle, there is a “Range”, allowing for the differences within those categories to be discussed (Cole, 1994).

Figure 1: The Chenail Qualitative Matrix (CQM) was used to analyze and report the interview and web search data



For example, in reviewing the data, a central tendency (identified from the reviewed literature) would be that in a highly restrictive setting an Internet content filter using keyword blocking would block sites that had the letters “sex” within the word.

5. Interpreting and reporting. This stage of the research process is critically important because, according to Flanagan (1954), in many cases the real errors occur not in the collection and analysis of the data but in the failure to interpret them properly. In each of the four preceding steps, the data analysis must be studied to see what biases have been introduced by the procedures adopted.

*Criteria for Selecting School Districts, Teachers, and Technology Administrators*

The researcher collected data from nine districts that filtered Internet content at various levels. Participating districts included those with “restrictive” Internet filtering settings, (i.e., choosing to filter all or most of the list of content categories recommended by the content filtering company), and districts with minimal Internet filter settings (i.e., significantly reducing the number of content categories to create a less restrictive environment). A further district selection criterion required that each selected school district have an administrative position assigned to technology management.

The researcher reviewed school district web sites and membership lists of the Minnesota Educational Media Organization (MEMO) and the Minnesota

Department of Education (MDE) to identify 345 Minnesota school districts that had an administrative position assigned to technology management. In keeping with the characteristics of qualitative research (Merriam, 1998), sampling procedures were purposeful rather than random due to the various criteria the researcher needed to meet in order to collect valid data. The researcher e-mailed an electronic survey to each of the technology administrators to find out what Internet content filter each district used and the categories that the district filtered. In addition, the survey asked the technology administrators if they were willing to assist with the study by participating in a structured telephone interview.

The researcher selected the content area of U.S. History (Appendix A) because the course requires the study and analysis of multiple perspectives and opposing viewpoints. The Minnesota U.S. History standards include the following Academic Standard:

Students will demonstrate knowledge of the imposition of racial segregation, African American disenfranchisement, and growth of racial violence in the post-reconstruction South, the rise of “scientific racism,” and the debates among African-Americans about how best to work for racial equality. (Minnesota Department of Education, 2007).

The content area of Health Education (Appendix B) was selected as the second content area for this research study because the course requires the study and analysis of multiple perspectives and opposing viewpoints. School districts determine their own standards for Health, using national rather than state standards. The following academic standard was required in all of the participating school districts:

Students will demonstrate knowledge of Disease Prevention  
HIV/AIDS Communicable disease; prevention & management HIV:  
Family Life: Human Sexuality transmission, diagnosis, progression,  
effects on immune system, and opportunistic infections Body systems and  
structure. Sexually transmitted infection: transmission, health risks,  
consequences, prevention, treatment, myths, resources, and responsible  
behavior (From participating school districts web sites).

The Minnesota Academic Standards (Minnesota Department of Education, 2007) for grades 9 through 12 require students to compare and contrast viewpoints and to use critical analysis. Students are expected to have acquired the information literacy and media skills (Appendix C) necessary for future learning by the time they exit high school (American Library Association, 1989; Dewey, 1897; Willard, 2002)

*Data Collection Method*

The researcher personally collected all data and conducted all interviews in order to maintain consistency and to increase the validity of the data collected and interpreted. Following the qualitative methods described in the *Design* section of this chapter, the researcher used electronic surveys, in-depth interviews, and URL checks on specified topics to collect data for the study.

*Technology Administrator Surveys.* The first step in data collection involved sending an email survey to 345 technology administrators. This survey provided background information about the study and asked respondents to identify the brand of filter they used, the categories they filtered, and whether they would participate in an in-depth telephone survey.

*Teacher Interviews.* The next step involved conducting in-depth telephone interviews to collect data from the participating teachers. The researcher conducted telephone interviews with nine teachers (Appendix D). The researcher collected information about the positive and negative experiences teachers had using filtered school computers, the teachers' expectations of students when a topic is controversial (e.g., are students expect to present both sides of an issue?), the resources that teachers expected students to use, and how teachers incorporated media literacy and information literacy into assignments. The researcher asked questions about what a teacher did if students could not

locate materials to support the requirements of the assignment, and about teachers' self-perception of their own information literacy and media skills (Appendix C). The researcher recorded the interviews, each taking between 25 and 35 minutes to complete.

*Technology Administrators Interviews.* The researcher then conducted in-depth, structured interviews with district technology administrators. Appendix E has the questions that were asked in order to identify current and perceived practices regarding Internet filtering procedures and professional development support for teachers in the areas of filtering, information literacy, and media literacy. The researcher conducted phone interviews with six technology administrators. The researcher recorded the phone interviews. Each interview took between 20 and 30 minutes to complete. Interview questions related to the following topics:

1. The brand and type of filter used (ISP driven, key word, white listing, etc.) (Electronic Frontier Foundation, 2002; M. Heins, 2003; M. Heins, Cho, C 2001; Kranich, 2004; T. L. Network, 2006; Youth Free Expression. Network, 2003),
2. Practices around filtering: the method for responding to requests to unblock or block sites, the level of access for users, the number of blocked sites requested to be unblocked per month, the length of time it



took to get a site unblocked, and the amount (if any) and depth of information literacy and media literacy the technology administrator thought teachers received through their school district.

*URL Checking.* The purpose of this step of the study was to verify how the Internet filter product used by the school district determined how to block web content. Of the eight different school districts involved in this study, seven used Internet content filters. The researcher reviewed each of the seven different products and checked 21 URLs to find out how each site was categorized and whether the site would be blocked in each school sites (Appendix E). The URLs were chosen using information provided in the interviews and using the topics stated in the Health and Social Studies standards.

### *Data Analysis*

Data analysis is the process of systematically searching and arranging interview transcripts, survey results, and other materials in a format that allows the researcher to present the findings to others (Bogdan, 2003). The researcher identified codes, such as 1 (Lack of Clarity) and 2 (Going Beyond) to summarize and describe results efficiently in order to use them for practical purposes (Byrne, 2001). Interviews were recorded and the results were checked with participants to verify accuracy. The Chenail Qualitative Matrix was used to categorize data and to notice patterns formed from one interview to another. Data were organized

around central tendencies determine how the data chunk together into *common themes* and *ranges* allow for the differences within those categories to be discussed data in terms of the “expected” and “unexpected” (Cole, 1994). For example, it is expected that in a minimally filtered setting a student can locate opposing viewpoints on controversial topics, such as white supremacy or HIV/AIDs. It is unexpected that a site on how AIDs is transmitted would be blocked in a minimally filtered setting.

#### *Trustworthiness of Data*

To determine the credibility of the data, the researcher used triangulation by asking the same questions of the different member groups (i.e., the administrators were asked what training they provided teachers on media literacy and the teachers were asked what training they received) (Siegle, 2007). The researcher confirmed data by asking others in the same school district during the interview process to verify accuracy in reporting and interpretation.

#### *Limitations of the Study*

The reliability of the data from the in-depth interviews was dependent on the responses from the participants. Triangulation across the member groups was used to verify the accuracy of the information provided by members of each group. However, it was not possible to cross check information between all

participants because the researcher did not have ‘perfect matches’ (i.e., there was not an administrator response for every teacher response and vice-versa).

Researcher bias must be considered in analyzing and interpreting qualitative data. Controls for bias included using consistent search methods to locate information and maintaining the context of participants’ data. The Chenail Qualitative Matrix also helped control bias by establishing a structured framework for analyzing data. Nevertheless, because Data were anecdotal and collected from a small population, care must be taken with generalizing from it.

There has been limited research to determine if Internet content filters limit secondary school students from accessing information they need to complete Minnesota State Academic Standards. The findings from this study provide baseline data for others to use to further this investigation.

## Chapter Four

### Data Analysis

The literature shows that little formal study has been done on the effects Internet filtering has on instruction and student achievement, or of the implications of filtering for the current focus on integrating media and information literacy or the so-called "21st Century Skills" into the curriculum. This study was undertaken to obtain some preliminary data related to these issues that could be analyzed to provide direction for further future investigations. Obtaining study participants who met the several criteria established for the study was a challenge. However, once those participants were identified, they provided survey and interview data of sufficient depth and breadth for successful qualitative analysis. A review of the data using Critical Incident Technique (CIT) analysis established that the number of participant cases and critical incident reports obtained were sufficient for a valid analysis (Flanagan, 1954). Coding, categorization, and analysis using a Chenail Qualitative Matrix (CQM) provided evidence of four major central tendencies and 12 themes within those central tendencies (Cole, 1994). The study results do not provide definitive evidence of the effects and implications of Internet filtering, but they do reveal specific filtering issues within and across the participant sub-groups, and they provide several themes and directions for further investigation.

This chapter describes the data collected from surveys, from the 15 in-depth interviews that arose from those surveys, and from Internet research substantiating information shared by the interview participants. Participants were chosen based on the parameters described in Chapter Three. Four central tendencies became apparent through the themes generated from the participants' responses (see Table 1). These central tendencies were as follows:

1. Lack of clarity existed within and between the teachers and technology administrator participants about the purpose and affect of Internet content filters;
2. Internet content filters blocked more than the Children's Internet Protection Act requires, which is to filter visual depictions of pornography, violence, and material harmful to minors;
3. The role of the district technology administrator within the school system appeared to impact students' and teachers' experiences on the Internet;
4. There was a wide range of interpretation among teachers responding to the survey about what constituents "multiple perspectives," "media literacy," and "information literacy."

Table 3

## Central Tendencies, Themes and Responses

Central Tendencies	Themes	Responses
1. Lack of clarity existed within and between the teachers and technology administrator participants about the purpose and affect of Internet content filters	<i>Protecting students</i>	10
	<i>Long term</i>	7
	<i>consequences</i>	
	<i>Frustrated teachers</i>	6
2. Internet content filters blocked more than the Children Internet Protection Act requires.	<i>Lack of requests</i>	15
	<i>Access</i>	6
	<i>Categories</i>	10
3. The role of the district technology administrator within the school system appeared to impact students' and teachers' experiences on the Internet	<i>Bandwidth</i>	9
	<i>The criteria used</i>	13
4. There was a wide range of interpretation among teachers responding to the survey about what constituents "multiple perspectives" and "information literacy."	<i>Impact on user</i>	6
	<i>Training</i>	14
	<i>Multiple perspectives and information literacy</i>	8

*Survey Results*

The school technology administrators were identified from the Minnesota Department of Education (MDE) public database. The researcher e-mailed surveys to 345 school district technology administrators. A total of 62 completed surveys were returned to the researcher (18%). Seventy-four surveys were returned as undeliverable. The e-mail survey included an overview of the study and asked administrators to respond to five questions:

1. Had they reviewed the Consent Form;
2. The brand of filter they used;
3. The categories they filtered (i.e. sex, hate, games, etc.);
4. Whether they would participate in an in-depth phone interview; and
5. A request for contact information.

Sixty-two technology administrators responded to the survey. Of those 62, 31 school districts (50%) had technology administrators who were initially willing to participate in the study. The results of the surveys are found in Appendix F. Among the 62 respondents, there were 13 different brands of filters in use. The number of categories blocked ranged from none to more than 13 categories (with the comment, “and much more”). Although the researcher intended to interview teachers and technology administrators with Internet filtering settings ranging from least restrictive to most restrictive, none of the

technology administrators in districts with the most restrictive filtering settings would agree to an in-depth interview. The researcher was able however, to obtain an interview with one technology administrator with the least restrictive settings, four that had moderate filter settings, and one with highly restrictive settings.

The next step of the sample selection involved identifying teacher participants within those 31 school districts. The researcher visited the web sites of the 31 school districts and identified 167 ninth grade social studies teachers and health teachers. The researcher contacted the teachers using an e-mail survey to determine if they satisfied the participant conditions for the study. Thirty were returned as undeliverable, leaving a potential pool of 137 teachers. The e-mail survey included an overview of the study and asked teachers to respond to five questions:

1. Had they reviewed the consent form;
2. Did they teach the MDE standard in question;
3. Did they ask their students to use the Internet to find information to complete assignments for this standard;
4. Would they agree to participate in an in-depth interview; and
5. A request for contact information.

The researcher employed a variety of techniques to boost participation in the study, including sending out personalized e-mails, changing the format of e-



mail and offering a gift card for participation. Despite the researchers' attempts, only 32 teachers (23%) responded to the survey.

The results of the surveys sent to teachers are in Appendix G and F. Of the 32 respondents, only 12 met the eligibility criteria to participate in the in-depth interviews. Teachers met the criteria if they taught the chosen academic standard, expected students to use the Internet for research, required students to present both sides of an issue when warranted in an assignment, expected students to use resources beyond state or district provided databases. Through multiple attempts, the researcher was able to schedule nine of the 12 eligible teachers (75%).

Eleven of the 32 teachers responding to the survey were Health teachers; but only seven of these teachers agreed to participate in an in-depth interview. All seven teachers had their students use the Internet to complete assignments for the standard studied. Of the 21 of the Social Studies teacher respondents, 14 agreed to participate but only five were eligible to participate in the study. The others did not ask their students to use the Internet to complete assignments for the standard addressed in the study. One Social Studies teacher responded that she did not currently teach the U.S. History Standard but would participate in the interview. The researcher interviewed this teacher because of her interest and her past experience with the content area. The researcher created a flexible interview

schedule, and telephoned and e-mailed potential participants on three occasions. Participants also were offered a choice of gift card options to thank them for their participation.

### *Sample Size*

Interview data consisted of information collected from nine teachers and six technology administrators from eight school districts representing urban and greater Minnesota. There were seven different filtering companies used by the participating districts and all but one (the least restrictive) filtered the categories “hate” and “sex.” The researcher predicted that filtering these two categories would have the most impact on whether teachers and students would be able to access web sites for the two standards addressed in this study.

The sample size was sufficient for the purposes of the study because seven (63%) of the 13 possible filtering companies were represented in this study. The level of access teachers and students have using the Internet is determined by the company a school district uses and how the Internet content filter is configured. The 62 technology administrators responding to the initial survey indicated that there were approximately 13 different companies used to serve as Internet content filters (several did not know which company they used). Seven of the 13 different brands of filtering companies were represented in the study and, of those, four were the most commonly used. As described in Chapter

Three, the researcher used Flanagan's Critical Incident Technique (CIT) (Flanagan, 1954) to determine whether the data collected from the eight school districts were sufficient to predict that there might be similar results for teachers' and students' searches in other school districts using the same brands of Internet content filter. Flanagan suggested that one potential strategy to determine sample size is to collect the minimum number of critical incidents and begin an analysis to see if enough data emerges. If data were insufficient, data collection would continue. If not, data collection would stop (M.L. Radford, 2006).

The researcher applied CIT with the teachers as well. The fact that only two Social Studies teachers participated in the study may be because only 5 of the 21 respondents (29%) reported using the Internet to teach the selected standard. In addition, the researcher found that the web sites that Social Studies teachers might access as discussion points to encourage multiple perspectives were more likely to be blocked. It is possible that the frustration voiced from the two teachers who did participate was also present among their colleague and that this frustration discouraged them from participating. The Health teachers reported experiences that were consistent with how their district administrator set up the Internet content filter. Applying the CIT, analysis to the critical incident data gathered in the seven interviews, the researcher determined that sufficient data had emerged to eliminate the need to locate additional participants.

*Teacher Interviews*

The researcher conducted in-depth phone interviews with the teachers before following up with the district technology administrators. Teacher interview questions were designed to obtain information about the teachers' prior knowledge about the teachers' experiences using filtered school computers. The interview pool consisted of three men and six women. Three teachers reported their age to be less than 30 years old, one teacher was between 31 and 40, two teachers were between 41 and 50, and three teachers reported being between 51 and 60. Five teachers held a Master's degree. The rest reported having between zero and 30 credits beyond their Bachelor's degree.

The in-depth interview consisted of 15 open-ended questions. The teachers were asked about their positive and negative experiences with using the Internet at school and whether they or their students found content blocked. All teacher respondents reported that either they or their students had experience where they could not access a particular web site or had an entire format (i.e., all blogs) blocked.

The teachers were also asked if they expected their students to find information that presented the controversial and multiple perspectives of the standard, and if they incorporated media literacy and information literacy into their assignments. Answers to these questions varied considerably. Seven

teachers found information for their students or referred them to their school web page or the school district web page for previously identified databases or links. Five teachers encouraged independent research at school or at home. There also was a series of questions on how the school district handled incorrectly blocked web sites, and what type and amount of staff development the district provided on the filtering product, information literacy, using online search techniques, and evaluating web resources. Answers to these questions varied as well. Eight teachers knew that there was a procedure for unblocking web sites but only two had made a request to unblock a site.

#### *District Technology Administrator Interviews*

Following the teacher interviews, the researcher conducted in-depth phone interviews with six technology administrators. All technology administrators had college degrees. Three had teaching licenses with a Master's in library science (one had an Ed.D.), one held a Master's degree in education, one held a teaching license, and one was close to a Master's degree and did not have a teaching license.

The interview protocol for the technology administrators consisted of 14 questions (Appendix E). Technology administrators were asked to verify the brand of filter they use, whether they block the categories "hate" and "sex," and the criteria they used to select categories to filter. Every administrator reported

using a different filtering product and five blocked the “hate” and “sex” categories. Three technology administrators reported that they worked with educators and technicians to determine filter categories; two reported that they decided independently; and one reported working with a team of technicians to determine filtering categories (participant overview in Appendix I). There were a series of questions that asked whether there were different levels of Internet access for staff and students, what the process was for having a site blocked or unblocked, how long it took to complete this process, and how many requests they received per week. Three technology administrators reported that the library media specialist had an unfiltered computer to check web sites, and three reported that teachers had less restrictive Internet filtering than students. One technology administrator reported that the police liaison could bypass the filter.

All six reported that they could have a web site unblocked or blocked within 24 hours but that they seldom had requests to unblock a web site. The average number of requests per week was 1.5.

Technology administrators also were asked to share examples of web sites that were “over-blocked” or “under-blocked,” to describe any long-term consequences for student learning if Internet filtering blocked some information, and to describe the professional development they provided in the following

areas: the filtering product, information literacy, using online databases, and evaluating web resources.

### *URL Checking*

During the course of the interviews, the researcher noted topics that teachers reported blocked by their district's Internet filters. The researcher located the corporate web site for each district's filtering software and conducted a URL check offered by each company to check how each rates an individual web site. Two of the products did not offer this service so the researcher contacted each company and asked a technician to identify how the URLs were categorized. The researcher identified 21 web sites based on specific topics that teachers mentioned that were sometimes blocked during their interviews. These topics were also noted in the academic standards chosen for this study as topics students study. For example, the U.S. History standard specifically states, "Students will demonstrate knowledge of the imposition of racial segregation, African American disenfranchisement, and growth of racial violence in the post-reconstruction South, the rise of "scientific racism," (Minnesota Academic Standards, 2007) and goes on to identify the Klu Klux Klan (KKK) as a resource for "scientific racism." It is highly likely that there are many resources available about the KKK but the researcher chose to conduct a URL check for the primary source – the website that the KKK maintains for their organization. The

researcher used the same rationale for choosing the web sites on human sexuality, such as URL for GBLT teen issues. Examples of web sites included information about white supremacy and human sexuality. The researcher compared this data to the categories each technology administrator reported blocking. Based on the information the technology administrators reported in their initial survey, the researcher found a range of one web site blocked in one district to nine of the sixteen web sites blocked in another district.

#### *Central Tendencies and Themes*

The researcher used the Chenail Qualitative Matrix (CQM) to analyze, and report the interviews and web search data. CQM made it possible to sort ideas and report them into a simple conceptual framework (Cole, 1994). Using CQM, the researcher hypothetically organized the findings in two concentric circles. The inner circle consisted of “central tendencies.” Central tendencies (CTs) described how the data chunked together into common themes or categories. For the purposes of this data analysis, central tendencies referred to the common findings expressed by the respondents. The researcher then examined findings and determined if they were the “expected” or “unexpected.” “Expected” referred to data that confirmed the ideas of authors in the literature review or the researcher’s assumptions. “Unexpected” referred to data that departed from authors’ ideas in the literature review or the researcher’s



assumptions. In addition, there was a “Range” that allowed for the differences within those categories to be discussed (Cole, 1994).

Following the in-depth interviews, the researcher transcribed the data. The researcher reviewed the data and aligned it with the corresponding questions, i.e., all of the administrator responses for question one were grouped together. As the central tendencies emerged, they were assigned numbers and a coding system was developed (Appendix J). Themes that emerged were given subset numbers to align with the central tendencies. For example: central tendencies that were identified as ‘lack of clarity’ were ‘1’ and the theme that the Internet filter protects children were ‘1.1’, etc. To protect participant identity codes are used to distinguish teacher and technology administrator comments i.e., T1, T2, etc. and A1, A2, etc.

*First Central Tendency: Lack of Clarity*

The first central tendency that emerged was that a Lack of clarity existed within and between the teachers and technology administrator participants about the purpose and effects of Internet content filters. There were four themes within this central tendency:

1. *Protecting Students.* The role that Internet content filtering has in protecting students;

2. *Long Term Consequences.* Student experiences using the Internet do not have a long term consequence on learning;
3. *Frustrated Teachers.* Teacher frustration with blocked content; and
4. *Lack of Requests.* The lack of requests to unblock web sites equate to good filtering policy.

Each of these themes is described further below.

*Protecting Students.* Within the data representing “lack of clarity,” the first central theme that emerged was the belief that the purpose for having the Internet content filter was to protect students from inappropriate material. Teachers were more likely share this sentiment than the administrators interviewed in this study. As one teacher commented:

We actually had a couple of students get onto some sites that were inappropriate and that was actually before legislation and before filters were put on. One student was actually corresponding to [with] a white supremacy person. They were doing a research project and they got a hold of this site and I think they e-mailed the person to do an interview, and nothing bad happened out of it, but I had to make sure that they understood that that was probably something that we shouldn’t have them do. You just don’t know where that’s going to lead, but that was before

the filters so I think in that case the filter would have probably had a valuable role. (T7)

While administrators mentioned safety as the reason for filtering, they were more likely to follow up with a comment that the filter was not perfect, that students need to know how to find appropriate content, and that teachers need to take responsibility for monitoring students while they are using the Internet.

As one administrator commented:

The bottom line, no matter how good your filter is, kids are going to find a way to get around it. Teaching ethics and proper Internet safety up front, I think, is real important. We have made a real concentrated effort this year teaching it at the elementary level and get it into the Middle School more, so hopefully all of the issues can be avoided and long term, kids understand and respect the use of the Internet. (A2)

Another administrator said:

We have known from the studies that even the filtering companies themselves will only claim about 95 % accuracy. So it is due diligence on our part to be informed that we have to tell people the filter is not going to take care of everything. You still have to help kids know what is appropriate and not appropriate, you still have to monitor students, I am not hearing, I hear very rarely, that kids are into pornography; although I

am sure that stuff sneaks through. We do get hits on nudity, they go to Google Images. It won't block the thumbnail; it only blocks the full image. To be honest with you, even though I am a great believer in intellectual freedom, I am really glad that some of that stuff is blocked. I didn't realize how disgusting some of that stuff is. So, I guess that there is little bit of puritan in me as well. (A1)

This administrator continued with:

The other thing that I think is really important is my gimmick on access is to allow students to make safe mistakes, and by that I mean, making a limited degree of trouble in school is recoverable. Do you know what I am saying? If they come to a site that is disturbing, they can raise their hand and say, "what happened here"? What does it mean? While if we wait until they are out on their own, who is that responsible adult they are going to be able to talk to get those issues resolved. (A1)

*Long Term Consequences.* The second theme that emerged from the central tendency of "lack of clarity" was that there was a range of opinions between teachers and administrators on whether there could be long-term consequences to student learning as a result of having Internet content filters. Most teachers and administrators did not make a connection between a student's voicing their frustration when they encountered blocked sites and that student's

losing interest in learning while at school. Only two administrators expressed concern that if students continually encounter blocked Internet sites in their pursuit of learning, they may become less engaged in school. Five administrators acknowledged that they were aware that students requested that sites be opened, but did not indicate that students were frustrated or that encountering blocked sites may lead to frustration or disengagement. One of the administrators who was concerned that frustration may lead to disengaged learners said:

I don't think it [Internet content filtering] will crimp their desire to learn, but what I think it is going to do is speak to the relevance of school in their lives. In other words, If I can't do this in school, if I can't find this in school, then I am just going to go home and continue my learning at home and then what place is school going to have in my life? To me there is the fact that school becomes a little less relevant should become a concern as well. (A1)

Another administrator expressed this sentiment:

I get students every once in a while that say, "Hey can you open up this site?" It is clearly blocked I ask them why. ...And it is because it is digital music...and I say, "Well, that is the reason why, because it can be downloaded." Well, then that is the end of our discussion. Unless you can

give me a reason why you need this for a class, that you need this, then it is blocked. (A6)

*Frustrated Teachers.* The third theme within the central tendency of “lack of clarity” was that more than half of the teachers voiced frustration because the Internet filter blocked content that either they or their students might be seeking. Only one administrator acknowledged that teachers might become frustrated if the Internet content filter were restrictive. Most teacher frustration stemmed from their inability to access certain formats, such as blogs and streaming video, rather than individual web sites. One teacher noted:

It’s usually images that I’ve found (blocked). Or certain topics that might have sexual innuendo in it... I can’t think of anything off hand but somebody will put in a word, oh-you can’t do that- it won’t let you go through on that one because it has this word in it. It’s mostly images, and every once in a while a student will put a word in or phrase in that has potential double meaning that kind of thing and, like I said, blogs that get blocked. (T7)

Another teacher voiced frustration that she could not access blogs and personal web sites that would provide first person accounts of the Harlem Renaissance or personal web pages from civil war buffs. (T8)

A Health teacher commented:

Yes, there's a couple of web sites, obviously dealing with STIs and stuff that are blocked and sometimes sites are blocked and I can't figure out why, like the 2005 dietary guidelines are just gone! (T4)

*Lack of Requests.* The fourth and final theme that emerged from the central theme of “lack of clarity” was the connection between the lack of requests technology administrators received to unblock web sites. Although administrators commented that they received a greater number of requests to unblock web sites immediately after they installed an Internet content filter, they reported that they currently receive very few requests. The administrator with the most restrictive filter settings reported having the fewest number of requests to unblock a site. This administrator commented:

Fortunately, the incidence of that happening (requests to unblock sites) is rare. With the filter in place, quite honestly, over the years I have had very few complaints. (A6)

One administrator said he realized that by blocking the “hate” category, students learning about World War II did not have access to personal accounts of the

Holocaust or Nazis, so his committee decided to unblock that entire category.

That administrator commented:

The fact at one point in time it was brought to our committee that we have hate sites blocked. In discussion, we found out that one of the Social Studies teachers over here has a culminating activity on the Holocaust in the WW II groups, ask the kids to do a compare and contrast of Nazis with current day hate groups, well unless you have the sites available to kids, the skinheads and some of those groups, it is very difficult to do that assignment. Had we blocked those sites, that would have been an activity that was less relevant and meaningful too. (A1)

The other five administrators blocked the “hate” category. The nine teachers participating in this survey worked in districts that block the “hate” category as well.

In summary, there was lack of clarity in the responses from the teachers and administrators when they reported on whether or not filters protect children or cause long term consequences to students’ ability and or interest to learn. On one hand, there were reports from both teachers and administrators that being stopped by blocked web sites might frustrate students, but these same teachers



and administrators did not make the connection that this frustration could lead to long-term consequences for student learning.

Another example of lack of clarity occurred between the teachers and the administrators in their response to making and receiving requests to have web sites unblocked. Most administrators interpreted a lack of requests to unblock web sites as a sign that students and teachers could find what they needed on the Internet. In reality, the lack of requests may have been because teachers were frustrated, intimidated, or ignorant on how the filter worked. For example, teachers reported that they did not know much about how the Internet content filter worked and most thought that a blocked site meant that CIPA required the site to be blocked. Another administrator described a team approach to deciding on whether to unblock a web site:

If there is a request, when they hit a site, there is a message that automatically pops up with a link for a form. It is just a basic form, which asks who you are, who is your supervisor, what site are you trying to get to, and what is your reason. This is for any person. The form goes to the team with a senior engineer and five of us that it automatically goes to. We have criteria about whether the site has pornography or whether there is an educational reason [to unblock the site], or whether there is an Internet bandwidth reason. We get requests to unblock YouTube

constantly, even though that's not a pornographic site per se. We look at educational value. The team usually defers to the teachers to make the decision whether the web site is educational value to see if it would be okay and appropriate to unblock. (A4)

The two teachers from this district reported that they had never made requests to have a web site unblocked.

This is an explanation from a teacher of the process for unblocking a web site at the school level:

Teachers can request specific web sites taken off the filter if it is something that you would be using in class. If there's a web site that you feel is going to be beneficial to the curriculum and to students learning process you can go to the IT staff and ask for it to be removed from the filters so that students can have access. You provide the list of your students and show what you are going to use it [web site] for [and] when you are going to use it, and then they can make it so our students can access it that way. It can be to just those students or they open it up to all students. If it needs to be done for all students, it can be done in 24 hours. On a smaller level, if it is something for just your class it may take long for school-wide or district-wide (T3)

In contrast, a teacher described the process for unblocking a site in another school district like this:

The last time that I needed to get into a [web] site I sent an email to the tech coordinator. I remember the last time I wanted to get into a list of consumer products they had been introduced because the kids were doing an advertising project. They wanted to know if there was a product introduced in the 1920s, so it was a simple thing like that, but it was on a site that they couldn't get into. So I had to email the site [URL], the rationale, and we've got this--it's called the EMCC – Eastern Minnesota Educational Cooperative. That's the guy that actually turns the switch to allow the site to be accessed. (T8)

*Second Central Tendency: Filtering Beyond What the Law Requires*

The second central tendency that emerged from the Data were that districts' filtered more than is required by the Children's Internet Protection Act (CIPA). The law states that schools must install "a specific technology that blocks or filters Internet access to visual [not text] depictions that are obscene, child pornography, or harmful to minors" (Carney, 2000a). This tendency emerged from the data reported by teachers and technology administrators through the following three themes:

1. *Access*. It is not necessary to access sites that are not deemed or categorized as “educational”;
2. *Categories*. Districts filter many more categories than needed; and
3. *Bandwidth*. Internet filters are used to control bandwidth (usage).

Each of these themes is described further below.

*Access*. The first theme identified from the central tendency emerging from the “*filtering beyond what the law requires*” was that most administrators used their Internet content filter to block web sites that they deemed as “not educational,” even though CIPA did not require the web sites to be blocked. Three administrators commented directly that they or their committee chose to block web sites because they were not viewed to be “educational.” Two others implied that they blocked web sites because they did not see the “value” of having the site accessible. One administrator commented:

We were having teachers that wanted to have sites open that were what might be called adult lifestyles, dating sites. And we’re like you really don’t need to be on a dating site during work hours. And I was backed on that decision too. Some of the people I know when they request them open like that, I say well I can talk to your principal or superintendent and ask if I can open that up, ‘oh never mind’ ... So it’s an education thing.

(A5)

Here is another administrator's viewpoint:

e-bay is blocked, on live auctions, we also block consumer shopping and specialized shopping and occasionally the consumer shopping has brought us a few problems, but the specialized shopping never has. The concern there is that we don't want a parent calling us up and saying what are you doing there? My kid has just spent \$350.00 in Social Studies class where he had the mobile lab with the laptops. That's a conversation I don't want to have...I want to go the other way and say we are doing everything we can to keep your kid from doing online shopping, because where is the educational value there? We determined there isn't any. The questionable activities, we block all that, which is weapons and bombs, the intolerance and extremism as well...our concern there is that someone isn't going to use our computer system for that type of end. We don't feel that is an appropriate use of our computer system either. What is the educational value there? Most of recreation is wide open for teachers but we still block gambling, gaming, humor, again, where is the educational values there? (A6)

Another administrator referenced game sites:

Periodically there are some gaming sites that kids want to have unblocked and they justify it by saying it is for a relationship to mathematics or

sometime teachers some have a game site they would like to have open and they have to give a curriculum rationale [teachers]. (A2)

When students encountered blocked web sites, two teachers explained that there were other choices for students, so that it did not matter that much if they encountered a blocked web site. One teacher commented:

It's the web sites that are not providing educational information that are blocked. So they should be able to find what they need at school. What I find the problem is not at school on these computers that are not filtered, they can find information that is not educational that is not valid. And it can give them misinformation and guide them down a path that they don't necessary need to go down. So it can be harmful. (T3)

*Categories.* A second theme that emerged from the central tendency to block more than CIPA requires was that all of the administrators blocked more than just the two to three categories needed to satisfy CIPA requirements. Depending on the Internet content filter product a school district purchases, they can meet CIPA requirement by filtering web sites in two to four categories or subsets of categories. All administrators reported that they filtered more than the categories required by CIPA. The administrator with the least restrictive Internet content filter settings said:

Well, we do block MySpace. We block that because of a directive from

our superintendent. After that program of *To Catch a Predator* aired about 1 1/2 years ago, he called me in my office about 7:30 in the morning and said, “don’t ask me any questions, just go ahead, and do it.”

(A1)

In contrast, another administrator commented:

And you mentioned Health. We keep open alcohol and tobacco and what is considered Health. We block drugs and we block adult sex ed

Researcher: And what about, I was thinking about the history site that mentions white supremacy, which leads into the KKK and is a part of the state standards and I am wondering if those categories block those sites.

Yep – and that would fall into cults, intolerance, extremism, violence or hate. (A6)

Teachers recalled certain areas of their respective content areas where they experienced blocked Internet content. They were not sure what it was about the site that triggered the filter to block it. One Social Studies teacher commented:

The other thing that is blocked a lot is lynching. Because there are lynching images and I don’t know if there’s a keyword or what that makes them blocked. It seems like when there is any kind of graphic

images of bodies, mass bodies, holocaust, Native American mass graves, those things are blocked. (T7)

A second comment from a Social Studies teacher:

Well, it's weird. No, it's not blogs at all. It [happens if] I typed in the "civil war" and somebody is a major civil war buff and he's got documentation and he's got pictures of weapons or whatever it might be but because of the way that it's registered with whatever he's going through it's seen as a personal page... So I can't get in there [to that web site]. It could have a wealth of information. (T8)

A Health teacher stated that a given web site was blocked because it contained information about sexually transmitted infections (STIs):

Yeah there's a couple web sites, obviously, dealing with STIs and stuff like that there's a couple of school web sites that schools block. But yeah sometimes students are like oh I can't get on this web site or whatever. (T4)

*Bandwidth.* A third and final tendency identified within the central tendency to block more than CIPA requires was the use of CIPA to control bandwidth, which in turn could block entire formats of information on the Internet. Blocking streaming video and certain formats was the most commonly discussed topic among teachers and administrators. Teachers commented that



they could not access YouTube, blogs, and streaming video sites. Teachers did not attribute the reason for blocking these resources to bandwidth but all of the administrators made this connection. All but one administrator blocked or restricted the use of one or all of these formats. Districts with more robust networks had more bandwidth to devote to these formats.

An administrator from a district that has more bandwidth said,

Some of it is a bandwidth issue and some of it is educationally related.

Like we'll work with teachers if they need videos... We've got Teacher Tube and we don't block Google video. We usually can find the equivalent. Teachers can get more sophisticated stuff other than YouTube. (A4)

An administrator in greater Minnesota with a less robust network noted,

We have a real problem with bandwidth, so sites that, if the students are not there as a part of their schoolwork then they don't need to be taking up bandwidth from kids who need to be doing their homework. So a lot of the places with downloadable videos, those are blocked. Unless teachers request them to be open for a period of time, then we open that up for them. (A5)

One teacher referenced blogging throughout his interview. Here is one of his comments:

You know what, it can be a variety of things especially since people have started blogging because all the blogs are blocked. Well I can't say, I don't know, all the blogs that I've ever tried to get on without using an override password are blocked and so all the blogs are blocked lots of times, (T7)

Finally, a comment from this well-traveled technology administrator:

See, when I go around and talk to people, I don't get a lot of oh, I can't get to the family planning site, or I can't get to the hate group, what I hear them complaining about is that districts are blocking entire formats, like I can't get to any blogs. I can't get to any Wiki's; the tech directors have sort of called every social networking site or blocked every web 2.0 site people blocking not content sites, but actual formats. (A1)

To summarize, every technology administrator used the Internet content filter to block more web sites, categories or formats than CIPA requires. One administrator blocked MySpace because his superintendent required it, but others blocked content because they or their committee decided certain categories of web sites were not necessary to the education process. In addition, districts blocked or restricted formats, such as YouTube because of bandwidth issues.

### *Third Central Tendency: Role of District Technology Leader*

The third central tendency became evident while analyzing the relationships and the roles of the district technology leaders within their

respective school districts. The role of the district technology leader within the school system appears to affect the level of filtering that students and teachers experience. Two themes were identified:

1. *Criteria Used.* The criteria used to select and monitor filter categories impacts user experiences;
2. *Impact on user.* The educational role of the technology administrator impacts the users' experiences.

*Criteria Used.* In the third central tendency, role of district technology leader, the “criteria used” for filtering emerged as a theme. The technology administrators participating in interviews had varied backgrounds. Their roles in their respective districts, and their educational backgrounds, reflected how decisions were made and the level of filtering that students and teachers experienced. The three administrators with library backgrounds made decisions by using committees that included teachers. One administrator described the decision-making team like this: “There were five of us, [a] combination of a technical team and a teacher team.” (A4). The Internet content filters in these districts had less restrictive settings and the media specialists in their buildings had access to a computer with unfiltered Internet access to check web sites. The above administrators also addressed the need for students to be proficient in information and media literacy. As one of these administrators expressed:

I think we have a couple of things operating for us. First, it is just the concerns for kids getting access to a variety of viewpoints. That has been part of the librarians' mantra for many years, is that we offer a variety of viewpoints and kids have to be exposed to those in order to make good decisions about what they read. We have always supported those things in the print world, maybe that is not so obvious in the online world. (A1)

The other three technology administrators were college graduates, and two had degrees in education, but none had library/information science backgrounds. Two of these three administrators also worked with committees to determine which categories to filter. One team included teachers, but that administrator commented:

I want to say that it is mostly me, however we do have a technology users' group comprised of teachers and administrators. We'll go through those [categories] at the meeting, and we'll go through them and block the ones that make the most sense as a committee, but I'm the one that actually applies those setting to the appliance and monitors it and administers discipline and so forth if any of the rules are violated. (A6)

One of these administrators expressed that the decision-making team wanted to get feedback from teachers after the district team made decisions:

Well again, I guess we didn't have lengthy discussions on multiple viewpoints. And quite frankly have very few people asking why we are not allowing certain sites [on their old Internet content filter]. So I guess we used our judgment in trying to pick the categories that we deemed most harmful and used that in a starting point. We really want the teachers to give us feedback on whether or not a site that they want to expose their students to has educational value in terms of looking at the different viewpoints than if the system is blocking that then we can certainly add that to the white list [make available] so they can have those discussions. (A3)

The third administrator without a teaching background was from a very small district. This administrator made decisions independently, with the support of the superintendent. The administrator did not have a degree in education but shared this comment:

I'm not a media specialist or anything but I think it's important that we not limit people and make that judgment for them on [content]. I don't know exactly what the answer is because again I don't necessarily want my 6 or 8 year old reading something that is pretty hard core...she may not understand what's going on, but it's just, where do you draw the line

on what's appropriate or not? Who gets to decide? I think people need to talk more about that than blocking everything. (A5)

This administrator appeared to struggle with decision-making when faced with a request to open a blocked web site. Some of the struggle was a result of a lack of bandwidth and some appeared to be a reflection of not having anyone to consult with determine how to set the Internet content filter in her district. Comments from teachers in this district supported this administrator's uncertainty when they talked about the process for unblocking a web site. One teacher from this school district said:

Oh, yes there is a process, normally that person meets with the computer tech lady and they sit down and she looks at it and asks, 'what is your intent?' You know, some of that is gory or a bit intense. You know when you are looking at child abuse site, or anorexia sites, that are not going to be in the best interests of the students. When you are looking at tattooing, you know a little guidance from the tech gal, really I think gives the kids the idea that the Internet work can lead you astray too. I like that guidance from the school. (T6)

*Impact on user.* A second theme identified was that there was a difference between the role that the technology administrator played in the district and the experience the end user had when using the Internet. It was mentioned earlier

that the three administrators with library backgrounds were those who chose to have the least restrictive filter settings. Both the teachers interviewed in those districts and the researcher's URL checking indicated that teachers in these districts were the most satisfied with their Internet searching experiences. They also reported fewer complaints of students encountering blocked web sites pertaining to the Health and Social Studies standards. When asked about their expectations that students find and use controversial, multiple perspectives, one of these teachers commented,

I think they should be able to. [They should] be interested in a topic enough to search out information in its simplest form and it will lead it to other pieces of information that will perhaps cause them to become a self learner. They can't learn it all in the classroom but I can sure show them the opportunities that they have to research and again, I should say that my Health class is called Health-science 1, so science usually involves research so I have my students doing research. They are learning, basically, how to learn.

Researcher: Have you ever experienced a site that you were looking for that was blocked by your school computers?

Not yet. My students and I find what we need to present multiple perspectives. (T8)

A Health teacher from a school district with less restricted filtering stated,

Every once in awhile I'll have information blocked but it's pretty rare that I'm not able to find what I need. I tend to use web sites that I know are valid and accurate and have quality information on them. So it's rare that I come up with things that I can't use. (T3)

Teachers from districts with administrators without library backgrounds who chose more restrictive filter settings reported mixed experiences finding web sites to support their curricula. Here is one teacher's perspective:

Actually, the filter has gotten a little better. I would say 5 years ago, it just seemed to block almost anything I wanted to get into... We can't get into any personal pages. Some of the other sites that used to be generally blocked have gotten better, I don't know if the filtering has gotten more specific or things like that. It's a hassle... Frankly, I would like to access YouTube in my classroom which is now filtered because every once in awhile there's educational things on there. [In the] 1920s unit we were talking about the Harlem Renaissance and there were some performers that I could get little snippets from YouTube with, well that was banned so I wasn't able to show that to the kids. You know that sort of thing. (T8)



The background of the technology administrator and the process for choosing which categories to filter had an impact on the experiences teachers and students had when using the Internet. School districts had less restrictive Internet filter settings if their technology administrator had a background in library or science or information media. Those technology administrators had committee that included educators to decide filtering guidelines, and provided an unfiltered computer in the media center so that the library media specialist could check blocked web sites for authenticity.

*Fourth Central Tendency: Information Literacy*

A fourth central tendency was a wide interpretation of the concepts “multiple perspectives,” “media,” and “information literacy.” This central tendency emerged from teachers’ responses to questions about their expectations for their students to find materials that included multiple perspectives and controversial information to support the Minnesota state standards addressed in their respective content areas. It also included responses to questions about whether teachers included information and media literacy in their assignments. Data from the technology administrators’ and teachers’ responses to questions about staff development were included as well. The two main themes that emerged were:

1. *Training.* Training for teachers in information literacy is limited;

2. *Multiple perspectives and information literacy.* Government sources and school district supplied databases and web sites provide adequate perspectives to meet Minnesota state standards.

*Training.* There was a discrepancy between the amount of training that district technology administrators reported providing for teachers and the amount of training that teachers reported receiving through district-led opportunities. Only one teacher reported that the district offered a session on how the Internet content filter works, but several administrators reported providing such training. One teacher reported:

We do have a couple of workshops in the beginning [of the year] where our technical support team will come and show us how the blocked web pages work and stuff like that. But other than that, none of the above.

(T5)

A teacher from another district reported on a class offered for new teachers:

When you first come into the district, you are offered to a class for [CEU] credits. It is technology based. How to use all the programs that you need to learn while you're teaching in the district as well as how to use different search engines that the district purchases access to. But in terms of teaching students how to access information, I don't think there's a lot of direct learning. (T3)

In contrast, several district administrators stated that there were many opportunities for their staff to receive professional development in the use of their filtering product. They also reported offering courses in information literacy, how to use electronic databases, and how to evaluate web sites. However, teachers from those districts who interviewed for the study were not aware that such professional development was available.

In a district where two teachers reported participating in professional training ten years ago and did not know how the filter worked, the technology administrator reported:

We send out a global e-mail to everybody explaining the process that we are turning a new filter on and that there's a process to unblock sites. In respect to information literacy... We do a lot of district classes as well as specific training for media the people and the techs on that. We offer to do those trainings with the media person if they do not want to do it by themselves on-site. We just did one again; we had a district-wide staff development day where we give mini sessions. We usually have 2 or 3 of those a year. (A4)

In response to an interview question about providing district professional development, another administrator said:

We used to have PD [professional development] in the district, what happened to it? Well, on the filtering system, we don't offer any formal staff development. We do put out information in newsletter by the media specialist when asked. That is more on demand... what we have done is move to a professional learning communities model and everyone is focused on test scores. We have not found a good way to work with these people on some of these other things that do not directly relate to test scores (A1)

Most administrators stated that they rely on their library media specialists to provide professional development for teachers. As one administrator said,

As far as the bases and searches and in-servicing the teachers, we are fortunate that we have a media specialist in each building. That responsibility would fall on them working with the teachers on a staff development day or before or after school to go through the resources that they currently have in the Media Center and via those databases. (A3)

In contrast, a teacher from this district reported,

They [school district] did this a long time ago. I've been involved in some of the information that you just said through staff development and the rest of it you just kind of learn it as you go. (T1)

Professional development to support media and information literacy also was scarce as reported by the following two teachers from different school districts.

One teacher stated,

I would say that in terms of professional development for us they really don't touch on those topics. Maybe about ten years ago they did. But there's so many other things that have been changed in technology that they need to deal with, you know all of our record keeping and attendance and all that is online. I would go personally to a technology workshop that the district would pay for and perhaps there would be a session on some of those things. That would be available to me, but the district does not really provide things in that area. (T8)

The second teacher mentioned,

I wish there was because our librarian will email us about Atomic Learning [online 'just in time' technology web resource] or atomic books or whatever and I don't have time to check it out and see what it is...So I wish there was a brief what each thing was, stuff like that. (T2)

*Multiple perspectives and information literacy.* There also were a wide range of interpretations of the concepts of "multiple perspectives" and "information literacy" when teachers were asked how they supported their students with or without the Internet in meeting the Minnesota state standard in their respective

curricular areas. Three school districts provide required courses for students with the objectives of learning how to conduct research, create presentations, and develop critical thinking skills using technology. Teachers in these districts referred to “multiple perspectives” as “different viewpoints,” and did not have consistent views on what constituted “information literacy.” Some commented that web sites ending in .gov or .edu were considered reliable and met the criteria as a “multiple perspective.” Most of the teachers directed students to pre-selected web sites and resources to locate information. Several teachers also stated that they located information for their students on both sides of an issue to meet the state standard criteria. When asked, “What are your expectations for your students to find the controversial, multiple perspectives surrounding this standard?” and “How do you incorporate information literacy into this assignment?” On the concept of information literacy, one teacher responded in part,

My expectation is pretty high just because they, coming in as freshman they all have a class like “2000X” and that’s like how to use the Internet, desktop publishing class, how to use word and all that stuff. So I’m kind of assuming and hopefully knowing that they cover that [information literacy] in that class but I also don’t take that for granted and I also try to take time to focus on that and show them what good sources are and what

good sources are not. Like this health & wellness site is an excellent one. [Students] find their article and they'd have to write a summary of the article and they put personal thoughts and opinions towards. They come share it to class and so I would always direct them to the health & wellness site because it basically has everything you need and if they couldn't find anything on there, I would show them in class like newspapers *St. Cloud times*, *Star Tribune*, and *New York Times*, you know good sources like that. (T4)

He further explicated:

Yeah, well we want them to not go to Wikipedia and we make sure that they go to a '.org' or an '.edu' or whatever, that's your most relevant and your best resources. Other ones, you can tell a lot by looks, if it looks like it's not professional, just how it's put together professionally- you can tell it that way too. That's about as far as I focus on that, I know in that 2000X class and that the librarian is also involved with that and I think they come to the media center and they do go over the resources they have and they go over what are valid resources and what are not. (T4)

Another teacher from the same district stated,

My expectations are for them to find as much as possible information that they can get. The more that is out there the more that they can learn. Even

if they do find stuff that's inappropriate on there they usually end up asking me and I'm able to tell them the difference between things and stuff. So it almost turns into a little bit of a teaching moment anyway.

(T5)

One teacher in a metro area school district did not use the Internet to teach human sexuality. She provided the following comment:

I don't use the Internet so much for that particular area [STIs] so I just assume that anything I show them or I have them take home we talk about whether it goes back to their parents I assume it is what would they think, more on the conservative side and go with that. Make sense?

Researcher: No, I'm not following you.

I stick strictly just to facts, causes and effects of STIs. I don't talk about "I think" or "you should."(T1)

Sometimes I personally do [use the Internet]...like I'll find the information, I'll cut/paste it, put it together and hand it out to them because sometimes computers for a whole class for a whole unit is not realistic. (T2)

When asked how she provided multiple perspectives for her students, she responded:



...I have my students do their work either before school or after school or at home and then come back with their [research], and then do a PowerPoint or do something that demonstrates that they did their research.

...It's [the topics] are about AIDs and stereotypes, myths about STIs and pregnancy and drugs as well. We do spend a lot of time talking, listing, correcting stuff like that. (T2)

A teacher in a rural community shared:

...So there's been, basically community input through the whole way [developing curriculum content], the curriculum committee is community members as well as school members. And so there are things that, you know, I know I would never bring up abortion, if a kid brings it up in class we'll have a conversation and I'll answer the questions but it would not be a topic that I would not generate. And that's sort of been the accepted procedure. (T8)

Another teacher from the same school district explained that she teaches a unit in Health on advertising web sites to help students learn how to determine difference between an informational web site and a company trying to sell a product. When asked if she thought students needed to learn how to evaluate

information found on web sites, she responded, “Oh absolutely, they need to be taught – no question about that. They all go to [www.marijuanaisgood.com](http://www.marijuanaisgood.com)! (T8)

A teacher in a metro district that requires students to take an information literacy class in eighth grade, reported:

The Internet has so much information on it and so much information that is not of quality and that’s not going to aid the student learning. So, if we’re asking students to look at controversial information, I provide that. I don’t ask for them to search for it online. (T3)

Those technology administrators with a media or information science background expressed a greater awareness of the importance of students developing critical thinking skills and becoming skilled users of information. Teachers lacked training to teach these skills to their students and had a broad range of opinions on what constitutes “multiple perspectives,” “media,” and “information literacy” skills.

### *Summary*

This chapter presented and discussed the findings of the study as obtained through an initial survey of Minnesota district technology administrators. Data were obtained from in-depth interviews with six of those district technology leaders; interviews with nine high school Health and Social Study teachers who worked with specific academic standards; a systematic URL check of selected

relevant web sites; and an analysis of the filtering software each in each of the participating school districts. Data were collected and transcribed using the qualitative Critical Incident Technique. Four central tendencies and 12 themes emerged using the Chenail Qualitative Method to analyze and evaluate the data.

The overview of the critical tendencies and themes revealed was presented in Table 1. Internet filtering was perceived as a necessary precaution by all teachers and district technology leaders participating in the in-depth interviews. However, there was a broad range of opinion among teachers and among technology administrators on the appropriate levels of restriction. As one technology administrator explained:

Researcher: So when you were looking at categories to block, did you choose categories that were not required by CIPA?

A6: Oh absolutely, lots of them.

Researcher: Why did you do that?

A6: We just thought they were inappropriate for education. As you know, the Internet is a big place... A few things from society, like alt, new age, because as soon as you get into those alternatives, I don't know if you remember those alt news groups, you know, Ikes! There was some pretty wild stuff there, Cult stuff, alternative life styles, I realize that may be a little bit questionable, but we are kind of taking the standpoint of, when in

doubt, block. It is a big place. (A6)

In contrast, another technology administrator explained:

We resisted putting any filter in place for many years. Our school board was comprised at the time in 2000-2001 when CIPA became law, with a number academics on the board who understood very well the concept of Intellectual Freedom. ...so, we also decide that we were only going to block the things that were in the spirit of the legislation...(T1)

Teachers with less restrictive filter settings reported less frustration using the Internet in their schools, but they also expressed some of the same frustrations as teachers who worked in districts that had more restrictive Internet filter settings. All of the teachers reported that they sometimes faced blocked sites if they tried to go outside standard web sites. As a teacher in a school with more restrictive filtering noted,

If I go outside of those resources, I do find a lot of sites blocked. In fact, my students when they do projects, they tell me they cannot get past the school firewall because they are going to a “.com”... when they are doing research on something like tattoos, or it could be on child abuse, they are not allowed to go on to their sources. (T6)

There appeared to be a relationship between a district’s Internet content filter configurations, the educational background of the administrator, and the

experience that teachers had using the Internet for teaching. The three districts with the least restrictive filter settings also had administrators that were trained school library media specialists.

The following chapter is a discussion of the findings and the research questions. The implications for the results of this study and suggestions for future possible research questions are explored.

## Chapter Five

### Recommendations and Conclusion

The purpose of this study was to determine if Internet content filters limit secondary school students from accessing information they need to complete Minnesota Academic Standards and, if they do, to identify how teachers and administrators respond when they find that students are denied access to information necessary to complete work assigned in order to meet state academic standards. This study also investigated whether teachers have the media literacy and information literacy training necessary to understand the implications of teaching students how to access, analyze, and critique information from diverse perspectives. An additional objective of the study was to investigate whether teachers are informed about the role media and information literacy skills play in preparing students for a future which we cannot predict (Dewey, 1897).

This chapter first provides a brief review of the legislation that prompted the research then discusses the specific questions about the implications of Internet content filters in secondary schools that guided the research in this study. The researcher used the Chenail Qualitative Matrix (CQM) (Cole, 1994) to report the study results using the simple conceptual framework described in Chapter Three. In this framework, “expected” refers to data that confirmed the ideas of authors in the literature review or the researcher’s assumptions, while

“unexpected” refers to data that departed from authors’ ideas in the literature review or the researcher’s assumptions (Cole, 1994). This chapter concludes with possible implications of the findings, a discussion of the limitations of the study, and suggestions for future research.

### *Context*

As schools became wired and connected to the world during the mid-1990s, educators recognized the value of the Internet as an educational tool. They realized that students’ could find a wealth of information quickly on the Internet without entering the library and could access information representing multiple perspectives. Because information sources on the Internet are unregulated, educators scrambled to implement strategies to educate, guide, and protect children from web sites that might be harmful to them. At the same time, conservative groups such as Concerned Women for America and Focus on the Family began working to limiting access to Internet content (Kingrey, 2005; Willard, 2002a).

Prior to the enactment of the Children’s Internet Protection Act (CIPA) in 2000, filtering opponents focused their concerns primarily around three issues: the inaccuracy of filters, whether or not filters violated First Amendment rights, and the potential impact that filtered computers would have on the “digital divide” (Heins, Cho, & Feldman, 2006). Once CIPA became law and established

specific legal criteria for filtering, the research focus shifted from gathering observational and anecdotal data to statistical analysis and formal research studies. Studies prior to 2000, however anecdotal and non-scientific, repeatedly suggested that filtering software did not work for the intended purpose of meeting the CIPA rule. According to these early studies, filters set at the maximum settings deny users information by overblocking. They also underblock sites, allowing access to sites that should not be accessible according to CIPA (Free Expression Policy Project, 2003; Heins, Cho, 2001; Tramontana, 2002; Willard, 2002a, 2002b, 2002c).

### *Discussion of Findings*

The following section reviews each of the four questions the researcher examined in this study. The researcher explains how the findings address each question and then applies the Chenail Qualitative Matrix (CQM) to determine if the findings were expected or unexpected. Expected findings are those that the researcher expected to find based on the Literature Review. Unexpected findings are those that prior research did not predict would occur.

*First Research Question: Level of Filtering.* The first question in the study addressed the question of whether Internet content filters limit secondary



school students from accessing information. If they do limit access, the degree is access limited and how the level of filtering (highly filtered v. minimally filtered) used by a school district affects the ability of students and teachers to access information students need to meet Minnesota Academic Standards (Minnesota Department of Education, 2007).

Data gathered from the initial survey of technology administrators, from interviews with teachers and administrators, and through URL checking appeared to indicate that the level of filtering can affect a student's ability to access information needed to meet the two Minnesota academic standards addressed in this study. Earlier research had found that restrictive Internet content filters tended to block legitimate web sites (Electronic Frontier Foundation & Online Policy Group, 2003; St. Ornge, 2004; Sutton, 2005), therefore this was an expected finding. However the researcher did not expect to find that there would be discrepancies in how the different filtering companies categorized web sites. The following data demonstrate the range of discrepancies students and teachers experienced.

In the initial survey sent to the technology administrators, the researcher asked which brand of filter their district used and what categories they filtered. The results of the survey indicated that the nine districts represented in this study filtered many more categories than CIPA requires. Eight districts filtered web

sites in the categories of “hate” and “sex.” The researcher reviewed examples of web sites that are typically filtered within these categories and determined that information found in these web sites are not required to be filtered by CIPA. When districts filter the categories “hate” and “sex,” they block web sites that could affect the ability of students to locate information addressing the health and social studies standards in question.

During the course of the interviews, the researcher noted topics that teachers reported blocked by their district’s Internet filters. The researcher conducted ‘URL’ checks that the filter company offered to determine how the company categorizes individual web sites. The researcher checked 21 web sites and compared this data to the categories each technology administrator reported blocking. The number of web sites blocked in the districts ranged from one to 11 sites. Rural districts had three of the four most restrictive filter settings. Of the two districts in larger metropolitan suburbs, one district had the least restrictive filter settings and the other blocked nine of 21 web sites, the same restricted filter level as the rural districts.

Unless a teacher made a specific request to have a site unblocked, or ‘white listed,’ students in the districts with highly restrictive Internet filters it was unlikely that they have access to the same range of information as students in districts with less restricted Internet filters.

Seven different companies were used by the nine districts in this study to provide Internet content filtering. The researcher noted a lack of consistency across companies in how they categorized a particular site. This finding was unexpected because, although earlier research compared the level of restrictiveness between brands of Internet content filters, there was no reported data showing such a wide range of discrepancies among companies in how they chose to categorize particular web sites. For example, earlier studies of Internet content filters suggested that the primary differences among filtering companies were determined by how the mechanism they used to block web sites - white listing, keyword, black listing, etc - and what web sites they chose to put into a particular category (The Library Network, 2000).

These previous studies did not indicate that companies were categorizing the same web sites differently. This situation may occur because software companies do not reveal their criteria or processes for categorizing and blocking web sites, to prevent competitors from offering similar products (California: State Librarian, 2006; Heins, Cho & Feldman, 2006). Therefore, it becomes more difficult for school district administrators to determine whether they are inadvertently blocking web sites because they do not know what is included in a particular category.

For example, a web site with information for teens on Gay Lesbian Bisexual Transsexual (GLBT) issues, such as <http://sexsupport.org/GLBTlinks.html>, might provide valuable information for students addressing the health standard on human sexuality - which may not be available in print form in the school library. However, one filtering company categorized this URL under “pornography” and another under “adult,” making the information unavailable for students in two districts, but for two different reasons. Another web site dedicated specifically to gay teen issues, <http://gayteens.about.com>, was also unavailable (based on the reported filter settings) in these districts. It is possible that these web sites were also blocked in two additional districts if those districts did not distinguish between ‘sex’ and ‘sex education,’ subsets in the filter setting for the filtering products they used. Teachers commented that they encountered blocked web sites addressing the Minnesota academic standard for U.S. History as well. The standard states:

Students will demonstrate knowledge of the imposition of racial segregation, African American disenfranchisement, and growth of racial violence in the post-reconstruction South, the rise of “scientific racism,” and the debates among African-Americans about how best to work for racial equality (Minnesota Department of Education, 2007).

Specific content for this standard includes:

Scientific “theories of race” in the late 19<sup>th</sup> Century; “Jim Crow” laws in southern academics; Poll Tax, literacy test, Grandfather Clause; founding of the Ku Klux Klan; Ida B. Wells-Barnett, W.E. B. DuBois, Booker T. Washington, *Plessey v. Ferguson*; anti-Chinese movement in the west and the rise of lynching in the south (Minnesota Department of Education, 2007).

Students interested in finding information from the Ku Klux Klan (KKK), <http://www.kkkklan.com>, would find that web site blocked in five of the seven school districts because the site is categorized as hate, racism, violence, intolerance, or extremism, depending on the filtering product the school district uses. One filtering product chose to categorize this web site under ‘education’ and one school district did not filter ‘hate,’ which is the category where this web site was located in that district’s Internet content filter. Students in three districts would find two sites, <http://www.americanlynching.com/infamous-old.html> and [www.withoutsanctuary.org](http://www.withoutsanctuary.org), blocked in their schools because the sites are categorized as violence, hate, or “gruesome.” The same sites are categorized in the other districts as educational, advocacy, news, or ‘society’. Another web site, <http://www.stormfront.org>, provides a primary resource on the white supremacy movement. Students and teachers in eight of nine districts involved in this study would find this web site blocked unless the district chose to white-list it.

At first pass, finding information blocked from a web site on GLBT issues, the KKK, or white supremacy may not seem important to a student's education, but these topics appear in the Minnesota Academic Standards and students are expected to understand multiple viewpoints on these and other issues. Information found in a textbook may be ten years old by the time it reaches a student. Information found on the Internet may be as current as the previous minute and is available at any time of the day or night, twenty four hours a day (Heins, Cho, 2003; Thornburgh, 2002; Willard, 2002b). In summary, the researcher found a lack of consistency in how the seven different companies used by the nine districts participating in this study categorized a particular site.

Given the same level of Internet access, students across the state should have the same quality of information whether they live in a rural community or a metropolitan area. However, data suggested that the students in the three most rural school districts may experience more restrictive Internet access. Perhaps students learning in school districts with restrictive Internet filter setting are less likely to be able to meet the human sexuality and U.S history Minnesota academic standards with the same depth of knowledge, information gathering and multiple viewpoints as their peers in metropolitan schools. In any case, the

study data indicates that they may have access to fewer Internet resources for developing those skills.

There was a concern after CIPA became law that conservative religious groups influenced the legislation and were involved (through ownership) in the companies marketing Internet content filters to schools. A 2001 study found that one company, N2H2, blocked web sites on gay and lesbian issues and human sexuality topics. (Edelman, 2002; Willard, 2002a). The researcher did not expect to find districts blocking sites on these topics given the literature available warning technology administrators of the potential concern that Internet filters can block web sites that are not restricted by law, unless care is taken to adjust Internet filters to less restrictive settings.

*Second Research Question: Response to Blocked Web Sites.* The second question dealt with how teachers and administrators responded if they find that Internet filtering software denies students access to information necessary to complete assigned work in order to meet academic standards.

The researcher found that while all of the teachers knew there was a process for unblocking a web site, few teachers ever made this type of request and one teacher had no idea how to proceed with a request to unblock a web site. During data analysis, the researcher identified this as one of the themes within the central tendency of lack of clarity that existed among teachers and

administrators about what they thought about Internet content filters and how they reacted to them. Using CQM, this was identified as an expected finding, supported by the researcher's review of literature that teachers may be insecure about requesting to look at blocked web sites (Heins, 2002).

Administrators in these school districts appeared to interpret that having only a few requests to unblock web sites indicated that students and teachers were satisfied with their level of access to information. This was not necessarily the case, as illustrated by a social studies teacher in a district that blocks the "hate" category:

There's a lot of personal pages that people have put together if they're passionate about a subject, that have a lot of information, that I would like to get into to see what they have to share. We can't get into any personal pages. Some of the other sites that used to be generally blocked have gotten better, so I don't know if the filtering has gotten more specific or things like that. It's a hassle. You have to email the technology coordinator and he actually has to go to our Regional Co-op to unblock the site. Usually I don't want to put other people in that hassle for one web site, it's more of a convenience thing for me I would just like to have it available. (T8)



Another teacher in a school district with a less restrictive Internet content filter reported:

Researcher: When something like that [blocked web site] happens what's your mechanism for reporting it and getting it re-opened?

I don't, because I don't think filters are strong enough for me to go and tell them to loosen or unlock something...it's for the better. I just leave it alone. (T2)

None of the teachers reported that they had made requests to unblock a web site even though several teachers and administrators reported that a web site could be checked and opened at the school site level, if only for a short period of time. Administrators in these school districts also reported few requests from their teachers to unblock web sites. The administrator from the district with the least restrictive settings explained that if a teacher made a request to have a web site unblocked, the request was completed without question because, "We just take the position that they are a professional and if there is anything they want open we add it to the white list no questions asked." (A1)

In contrast, several administrators requested a rationale for every request to unblock a web site and, in some situations the request went before a committee. The administrator from the district with the most restrictive Internet filter settings handles requests in this manner:

I will listen to their argument and I will make a decision. The principals have tons of things to do and I suppose if they are ever upset they will go over my head, but that hasn't happened. For instance we have an English teacher that has some word games on it, called POP cap, there is also a ton of other junk, but she likes to use these word games for just a couple of days, so I will just open it up for a couple of days... The counselor that comes down and says, "Hey we've got some issues with a kid on MySpace or Facebook which we definitely block. I will open it up so he can do whatever he needs to do, to resolve it, but a lot of times it is not a permanent change, but just a temporary change so they can do that particular task. (A6)

This administrator reported very few requests from teachers to unblock web sites. It is possible that teachers feel they are under personal scrutiny because requests go directly to the administrator. However, teachers from this school district did not follow through with setting up an interview with the researcher, so this possibility was not investigated.

These data reveal a central tendency that teachers working in a less restrictive Internet environment express less frustration about their schools Internet content filter. Teachers able to check a blocked web site at the school

level expressed more confidence that their filter was doing a “good” job and were not as disgruntled as teachers who had to go through a district or even a regional level process to have a web site unblocked. It might be expected that the attitude of the administrator receiving a request may have an impact on the number of requests that the administrator received. An administrator who views every request as a challenge does not receive many requests, giving the possible illusion students and teachers are satisfied with their level of access to information. The researcher also expected that an Internet content filter that was not as restricted would create less need to make a request in the first place.

*Third and Fourth Research Questions: Role of Media and Information Literacy*

*Skills.* The researcher asked the third and fourth questions to determine if teachers were informed about the role that media and information literacy skills have in preparing students for a future we cannot predict. Responses from teachers participants suggested that they had a perception of the importance of preparing students to be life long learners and the necessity for students to have media and information skills in order for students to meet this goal, but their responses were vague and they did not identify many of the skills defined in these literacy’s. For example, in response to the question of providing multiple perspectives for students (with or without using the Internet) a Social Studies teacher said that he searched the Internet for appropriate web sites and

put them on his homepage for students to review. In addition to the teachers' self-reported lack of professional development, there may be several reasons for their lack of specificity regarding questions on this topic. Several teachers mentioned that they relied on the library media specialist to teach these skills. Three teachers reported that students took a required class to learn how to use technology to access information. Only one teacher's class seemed to require discreet research skills that would qualify as media or information literacy. This health teacher prepared a unit on evaluating information. She asked students to compare and evaluate information on a product first using advertisements and then using the actual product content and description.

Using CQM, the researcher found it to be a central tendency that there was a wide range of perceptions about what constitutes multiple perspectives and information literacy. The researcher expected that teachers would see a relationship between a student's ability (of lack of ability) to acquire sufficient analytical skills if a student encountered blocked web sites and that information blocked by the Internet filter might limit a student's ability to develop multiple perspectives. Instead, the researcher found that they were responding to the academic standard requiring students to develop multiple perspectives simple by asking students to respond to two sides of an issue that the teacher pre-

determined. The following response is from a teacher in response to the question on this topic is similar to the other teachers in this study:

If we're asking students to look at controversial information [to develop multiple perspectives], I provide that. I don't ask them to search for it online...I would find something that is valid that maybe is showing two sides of the situation. Then I provide that usually in print form to the students. (T3)

The researcher expected that the teachers in this study would make a connection between media literacy and the ability to access a wide range of viewpoints online, information, but they did not. The researcher also noted that most teachers did not expect students to conduct independent research. When asked if they then conducted prior online investigations to find electronic resources for students to ensure that students had access to information that represented multiple perspectives, all of the teachers' responses were similar. This response illustrates this perspective:

Usually I do, if my goal is specifically that we want to find multiple perspectives on something I go out there and make sure that we are going to be able to find something. I do on occasion; if there is specifically something I want them to find on the social studies homepage. I can take those web sites and upload them onto my homepage, and I just direct

students to go to the homepage and I'll say, "there are eight web sites available for you to use." So, I do that. (T7)

A second teacher commented:

There are national benchmarks for health and many states have adopted those. Within those benchmarks there is a section called 'accessing information'. So we take time throughout our curriculum to make sure we are teaching students how to use the Internet and how to decide whether a web site is valid or invalid or in between. We talk about looking at the author, looking to see if the web site has been updated and whether there are any companies or organizations supporting the web site. Is there an underlying, 'I'm trying to sell this product' kind of thing? So we spend time throughout the semester hitting on those topics and then they actually do a project where they have to do research on the Internet on diseases, and then they have to present the web site [in a presentation] and show that what they used is appropriate, valid, that kind of thing. (T3)

This teacher went on to say that she focuses on the skills needed to access information, explaining to the students that she provides the web sites in the beginning so that students can learn how to evaluate information and then lets the

students find their own web sites. Another teacher addressed citations and identifying authentic sources:

I usually try to make sure that they have some sort of an author and backing behind the source. I make sure they try to cite the source, make sure it is a creditable source, and it's not just an editorial and something like that, make sure they know the difference between a primary source and an editorial or something like that. (T5)

### *Implications*

This section reviews the purpose of the study and discusses the possible implications suggested by the findings. When the Children's Internet Protection Act became law in 2000, it created concern among some educators that the law might limit First Amendment rights and could impinge on intellectual freedom. Those who studied the implications of Internet content filtering in the early days of the law found that filters were often ineffective. Internet content filters often under-blocked content that CIPA required and over-blocked content that should not be filtered. Educators became concerned that restrictive filters might negatively affect students' ability to access information important to their education.

This researcher's goal was to determine if Internet content filters limit secondary school students from accessing information they need to complete

Minnesota academic standards. The researcher presumed that since the implementation of CIPA, filters had become more sophisticated and were more able to differentiate between legal content and content that CIPA required to be blocked. The researcher also presumed that technology administrators would use the information available about the possible pitfalls of Internet content filters to configure their own filters in order to minimize over-blocking any content that is either necessary to meet state standards or useful to help expand students' ability to develop multiple perspectives and critical thinking skills.

Several administrators stated that they had recently changed brands of filters and mentioned that their new filter provided them with new features, one being the ability to white list individual URLs within a category. These were the same administrators who commented that the new brand offered greater control over content and offered surveillance features so that they could locate individuals attempting to violate the filter settings.

There was also a variance in the process teachers had available to them to request having a web site unblocked. The districts with more restrictive filter settings required teachers to go through a building or district level technology administrator to ask for a web site to be reviewed so that it could be unblocked. In some cases the request had to be reviewed by a committee. In contrast, the districts with the least restrictive Internet content filters had unfiltered computers



in each school to allow easy verification of a blocked web site. One technology administrator stated adamantly that he unblocks web sites a teacher requests, “no questions asked.” (A1) Although the researcher did not explore the reasons why districts chose their method for managing requests to unblock web sites, it is possible that they were accommodating the real or perceived values of their respective communities in their decision-making.

When asked the brand of their Internet content filter and asked how decisions were made on what categories to filter, only one technology administrator referred to the available research that indicates that filters are flawed. This administrator added that this research influenced his decision about how to manage the CIPA requirements in his school district.

The limited amount of data collected in this study suggests that neither the assumption that filters have become more accurate nor the assumptions that technology administrators consider the possible pitfalls on the reliability of filters was accurate in relation to the two state standards studied here. URL checking done for this study revealed that there were discrepancies among companies how they configure their Internet content filters, making it difficult for technology administrators to compare brands and to know what types of web sites might appear in a particular filtering category. The implication is that technology administrators may not be aware that a legitimate web site that a student wishes

to access for research on GLBT health issues could be blocked because it is categorized as pornography by one brand of filter but not blocked by a different brand of filter. Another possibility could be that technology administrators are unwittingly blocking web sites students need because of the unwillingness of Internet filtering companies to reveal how they chose to categorize their products. Survey responses contain some evidence of how this possibility may affect student learning.

The majority of technology administrators responding to the survey filtered the categories “hate” and “sex.” URL checking for this study showed that when these two categories are filtered, information students need to satisfy at least two Minnesota academic standards is likely to be blocked. For example, students will not be able to access primary sources on the Ku Klux Klan in school districts that block “hate” sites. Although URL checking found fewer restrictions when trying to locate factual information on topics such as STIs, students in some districts may not be able to explore topics on human sexuality, particularly GLBT information because sites on this topic are usually filtered under the “sex” category. School districts outside metropolitan areas also had more restrictive settings than did school districts in metropolitan areas.

This sort of restricted access is important because textbooks and journal articles may provide only one limited perspective on a white supremacy

organization. Information in textbooks and other print sources also may be outdated, and a textbook may not provide students with the perception that the KKK is still an active organization. Because CIPA does not require schools to block sites such as the KKK web site, there is no legal reason to deny students' this access. Because the Minnesota academic standard requires students to learn about the role the KKK had on the post-reconstruction South and about the rise of "scientific racism," intentionally or unintentionally using an Internet filter to restrict access to these resources limits student' ability to locate information that is available on the Internet to address the academic standards addressed in the study.

This study also explored how well prepared teachers are to teach students media and information literacy skills, and if they intentionally present multiple perspectives when teaching the two standards addressed in the study. All but one teacher of the nine interviewed, reported that they had limited access to professional development that would teach them how to best utilize web resources and how to effectively integrate media and information literacy into their lessons. Their responses also indicate a narrow definition of media and information literacy with few examples of how they help students develop multiple perspectives. With the data representing eight school districts of various

sizes and locations, the CQM analysis suggests that it is possible that the responses are representative of other teachers in the state.

The data represented in response to research questions three and four could imply that students, to paraphrase John Dewey, are not being prepared for a world they do not know. Several organizations, including The Partnership for the 21st Century, the International Society for Technology in Education, and the American Library Association, emphasize that it is imperative for students to become proficient in media and information literacy skills so that they are prepared for the demands of the 21st century.

A final implication is one that surfaced during the interviews. The researcher asked both teachers and administrators if they felt there were long term consequences of Internet content filtering on student learning. Three administrators and two teachers echoed the recommendation from a report issued by Marjorie Heins and Christina Cho in 2003 to inform the public and policymakers about the importance of media literacy education. That report recommended that media literacy education should be embedded in both legislation and educational standards and asserted that media literacy could relieve pressure for censorship:

Media literacy is far better than censorship, not only for those concerned about troublesome media messages but for everyone committed to

modern education, intellectual freedom, and the healthy development of youth (Heins, Cho, 2001).

Two administrators and one teacher went on to say that a possible implication of relying on an Internet content filter to regulate what students' access on the Internet limits the students' ability to become media literate. They were concerned that students did not have the opportunity to make "safe mistakes" (A1), experiences that would help them make wise choices in the future, and that they might lack skills needed to help them to discern the validity of information presented to them.

### *Recommendations*

Although this was a limited study, the data provide evidence that districts can use to better meet the educational needs of their students by modifying some of their current practices. The researcher makes the following recommendations about Internet content filters in order to improve students' level of access to information on the Internet and to increase teachers' knowledge of media and information literacy skills.

*Understanding the CIPA law.* Only three of the school district technology administrators indicated that they understood the CIPA law. None of the teachers reported that they understood the true intent of CIPA. As a result, it appeared that the committees or individuals making decisions on what should be

filtered were filtering information that often went far beyond what the CIPA law requires. It is possible that districts would choose less restrictive Internet content settings and that teachers would be more confident about reporting blocked sites if everyone had a better understanding of the law. There is also a possibility that this variation may simply reflect differences in administrator and parent values across schools and districts, rather than ignorance of the CIPA law.

It is recommended that organizations such as the American Library Association (ALA), the International Society for Technology Education (ISTE), and the Consortium for School Networking (CoSN), provide regular reminders, updates and presentations about the CIPA requirements to school administrators, media specialists, teachers, and technology administrators through their respective organizations. As new decision makers replace current ones in school systems, it is important that they understand CIPA requirements so that they can make decisions based on the actual law rather than on passed-down information that may be inaccurate.

*Choosing an Internet Content Filter.* There were great discrepancies between filtering companies in how they categorized web sites. The one school district in this study that took the time to carefully analyze the Internet content filter made decisions that allowed students to access the web sites students needed to fulfill the state academic standards studied. School district technology

administrators, with a team of licensed teachers and library media specialists should re-evaluate their district's current Internet content filter product to better understand what type of web sites their filter blocks. This team should also review state academic standards to verify that students can access information they need to complete the standard's requirements. It is predicted that school districts would create a less restricted Internet content filter if they had a better understanding of how the product they use categorizes those web sites.

Because the web is constantly changing, school districts should also have a process in place to conduct periodic URL checks on web sites, to cross reference the results with academic standards to ensure that web sites provide multiple perspectives and required aspects of the standards.

*Choosing Which Categories to Filter.* School districts that included teachers, library media specialists, and curriculum specialists in the decision making process of selecting Internet content filters had less restrictive filter settings and had a greater availability of appropriate web sites. Therefore, it seems prudent for school districts to include a broad stakeholder group in the filtering decision-making process to increase access to legitimate web sites.

The researcher noted that none of the administrators stated that they had formal guidelines for determining what to block, i.e., something similar to a Selection Policy for library books and instructional materials. It may be prudent

for school districts to consider having formalized policy and procedures around the CIPA law to help guide school district decision-making. Lacking a formal policy, school districts that choose to adhere to the CIPA requirements and refrain from using the Internet content filter to block web sites just because that may be deemed “controversial” will provide a less-restrictive environment for students and are less likely to block information students need.

It is relevant to note, that teachers and technology administrators in districts with less restrictive Internet filter settings did not report an increase in inappropriate sites accessed by students when less restrictive filter settings were in place. In addition, only several teachers and administrators noted that they were aware of the inaccuracy of Internet filters and of the importance to supervise students while they were using the Internet. Suggested strategies for supervising computers include maintaining student seating charts, placing computers so that monitors are visible, teaching students how to read the URL address before they open a web site, and how to quickly turn off a monitor if they encounter a web site that the student feels is inappropriate.

Professional organizations such as ISTE, ALA, and CoSN should provide on-going information in their publications and to the professional organizations that cater to educators about the importance of supervising students while using



the Internet and reinforce that Internet filters are not a substitute for an enforced Acceptable Use Policy.

*Managing Blocking and Unblocking of Web Sites.* Three school districts reported that they had unfiltered computers in their schools so that teachers and media specialists could conduct URL checks on blocked web sites. Teachers in these districts also reported less frustration when either they or their students encountered a blocked web site. Since the CIPA law specifies that teachers conducting research do not need to work on filtered computers, it is recommended that unfiltered computers be available to teachers so that they can check the legitimacy of web sites without going through a technology administrator. In cases where there is a decision to have highly restrictive settings on Internet blocking software, it is recommended that each district develop procedures for unblocking specific educationally useful sites efficiently and expediently when it is discovered that the restrictive settings block those sites. These procedures would serve to accommodate differences regarding blocking across schools and districts while avoiding the worst blocking errors.

In addition, teachers who understand the CIPA law are more likely to request web sites to be unblocked. As mentioned earlier, professional organizations that cater to teachers should provide information about CIPA to

help keep teachers informed and to periodically “remind” teachers of the CIPA requirements.

*Information Literacy Skills.* Teachers interviewed in the study indicated that they had limited training in media and information literacy and their responses suggested that they had a narrow of the term, “multiple perspectives.” Current data from the ALA, the Partnership for 21st century skills and the International Society for Technology Education all agree that it is important for students to have these skills so that they are prepared for the demands of the 21st Century. School districts need review their curricula and their expectations of teacher’s skills to ensure that teachers are prepared and expected to teach and assess these skills.

Both teachers and administrators noted that they rely on the school library media specialists (LMS) to teach media and information literacy skills. The researcher is compelled to note that many school districts in Minnesota, the state where this research was conducted, are cutting back on LMS staffing. Serious consideration should be given to the possible consequences to these staffing decisions if teachers are relying on the LMS to support student learning in these areas, especially since media and information literacy have been identified as critical skills for the 21st century learners.

Universities and college that Pre-service teacher training programs also should consider the training they provide in the areas of technology awareness, media, and information literacy. The researcher noted that even the most recently trained teachers interviewed for this study did not understand CIPA nor did they express a firm understanding of “multiple perspectives.”

#### *Limitations of the Study*

The study involved representation from only nine of the 345 Minnesota school districts. However, there were participants from rural, metropolitan, and greater Minnesota communities. Seven different brands of Internet content filters were represented in this study.

The reliability of the Data were dependent on the responses from the participants. Triangulation across the member groups was used to verify the accuracy of the information provided by individual within each group, (i.e., both administrators and teachers were asked about professional development offered to teachers in the areas of information and media literacy). Because the researcher was not able to secure ‘matched pairs’ for every school district, the researcher conducted follow-up emails with several district technology administrators to further verify information.

Researcher bias must be considered in analyzing and interpreting qualitative data. Controls for bias included using consistent search methods to

locate information and maintaining the context of the data reported by the study participants. The Chenail Qualitative Matrix also helped control bias by establishing a method for analyzing data. Nevertheless, it is important to note that the data were anecdotal data collected from a small population.

### *Suggestions for Future Research*

There has been limited research regarding the influence of Internet content filtering on student access to information needed to achieve Minnesota academic standards. The findings from this study can provide baseline data for others to use to further this investigation.

After collecting and analyzing the study data, the researcher foresees several possibilities for future research. The data indicates that Internet filters continue to block web sites that are legitimate and necessary for students' successful achievement. Future researchers could investigate what progress is being made to increase the accuracy of Internet content filters. Researchers could investigate the reasons why some school districts choose to filter much more than is required by law and whether policy and procedures have been developed to help guide school districts on how to manage CIPA requirements.

For the two Minnesota academic standards studied, the majority of school districts blocked some web sites that contained information specifically mentioned in the U.S. History Minnesota standard. Another study might examine

whether school boards, parents, and teachers are aware that Internet filters block certain web sites on topics that the Minnesota standards require students to learn.

Results showed that teachers interviewed in this study lacked training in media and information literacy skills. A future study could examine districts that have comprehensive plans to develop teachers and students competent in media and literacy skills. A future study also might involve students to find out the effects of Internet content filter on their learning, how they react when they encounter blocked web sites at school, and if encountering blocked information affects their motivation and their opinion about the relevancy of school and learning.

### *Conclusion*

The purpose of this study was to determine if Internet content filters limit secondary school students from accessing information they need to complete Minnesota academic state standards and, if they do, to identify how teachers and administrators respond when they find that students are denied access to information necessary to complete work assigned in order to meet Minnesota academic standards. The study data indicated that the categories a school district chooses to filter (from less restrictive to more restrictive) might limit a students' ability to access information necessary for meeting the U.S. History and Health standards chosen for this study.

This study also investigated whether teachers have the media literacy and information literacy training necessary to understand the implications of teaching students how to access, analyze, and critique information from diverse perspectives. It further investigated whether teachers are informed about the role media and information literacy skills have in preparing students for a future which we cannot predict (Dewey, 1897). The researcher learned that there is still work to be done to inform school districts on how they can best comply with CIPA to meet the law's requirements but also provide the appropriate access to information on the Internet that students' need to meet academic standards. In addition, the researcher learned that there should be further investigation to determine if students are being prepared with the media and information literacy skills they need for the 21st Century.

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Appendix AMinnesota Academic Standards for U.S. History

Social Studies is the study of **history**, **humanities**, and the **social sciences**. The purpose of studying these disciplines is to prepare young people to become responsible citizens and develop social understanding. Social studies standards and curriculum build four capacities in young people: disciplinary knowledge,

<p><b>I. U.S. HISTORY</b> <b>J. Reshaping the Nation and the Emergence of Modern America, 1877-</b> <i>The student will understand the origins of racial segregation.1916</i></p>	<p><b>1. Students will demonstrate knowledge of the imposition of racial segregation, African American disenfranchisement, and growth of racial violence in the post-reconstruction South, the rise of “scientific racism,” and the debates among African-Americans about how best to work for racial equality.</b></p>	<p>1. “Scientific” theories of race in the late 19<sup>th</sup> Century; “Jim Crow” laws in southern states; Poll Tax, literacy test, Grandfather Clause; founding of the Ku Klux Klan; Ida B. Wells-Barnett, W.E. B. DuBois, Booker T. Washington, <i>Plessey v. Ferguson</i>; anti-Chinese movement in the west and the rise of lynching in the south</p>
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disciplinary skills, commitment to democratic values, and citizen participation.

Appendix B: Health Standards

The content area of Health Education was selected for the health element of this research study because the course requires the study and analysis of multiple perspectives and opposing viewpoints. School districts determine their own standards and this standard was required in the participating school districts:

Disease Prevention HIV/AIDS	Communicable disease; prevention & management HIV: transmission, diagnosis, progression, effects on immune system.	Body systems and structure. Sexually transmitted infection: transmission, health risks, consequences, prevention, treatment, myths, and resources. Responsible behavior.	Self-responsibility: BSE/TSE. Attitudes about sexual transmitted infections. Resources to get help.
Family Life: Human Sexuality	Developmental growth stages. Adolescence as a growth stage.	Reproductive systems. Functions of health families. Abstinence/sexual responsibility, human sexuality, consequences/risk behavior, contraception, influences, and decision-making.	Reproductive systems, abstinence, and contraception. Relationships and responsibilities, expressing affection and intimacy.

### Appendix C: Media Literacy and Information Literacy

#### Media Literacy

Media literacy is education for life in a global media world. For 50 years, since the invention of moveable type, we have valued the ability to read and write as the primary means of communicating and understanding history cultural tradition, political and social philosophy.... Today...all community institutions share the responsibility for preparing young people for living and learning in a global culture that is increasingly connected through multi-media and influenced by powerful images, words, and sounds.

The heart of media literacy is informed inquiry. to: 1) Access information from a variety of sources, 2) Analyze and explore how messages are “constructed”, 3) Evaluate media’s explicit and implicit message against one’s own ethical, moral and/or democratic principles, and 4) Express or create their own message using a variety of media tools (Thoman, 2003).

#### Information Literacy

To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information (American Library Association, 1989)

Appendix D: Question Format for Teachers

	START TAPE RECORDING
√ Done	Questions
1	Recall a time when you experienced a positive Internet search when you were preparing a lesson for your students. What made it a positive experience?
2	Recall a time when you were preparing a lesson for your students and Internet resources you intended to use were blocked on your school computer.
3	What has been your experience using the filtered Internet teaching this content standard?
5	What resources do you provide/recommend/require students to use to locate information?
6	What are your expectations for your students to find the controversial, multiple perspectives surrounding this standard?
7	Are your students able to find information that presents the controversial, multi-perspectives of this standard? If not, what do you do?
8	Do you do prior research on the Internet to determine if there material available that is controversial and includes multiple perspectives surrounding this standard?
9	If you don't use the Internet to teach this standard, why not?
10	If the information is not available on the Internet, is it available in the print form?
11	Do you need to make information (other than the school text books/supplemental materials) available so that your students have the range of material he/she needs so that they have a wide ranges of resources with varied viewpoints?
12	Based on the CIPA law, nothing addressing should be blocked. So, If you or your students find inform that would be useful that IS blocked: <ul style="list-style-type: none"> <li>• What do you do?</li> <li>• What is the procedure for getting a site unblocked?</li> <li>• How long does it take?</li> <li>• Are you told when the site is "opened"?</li> </ul>
13	Is there a long term consequence for student learning if Internet filtering blocks some information? If so, what is it?
14	Describe the professional development you have had in the following

	areas (Appendix D): <ol style="list-style-type: none"><li>1. The filtering product – how it works, what to do if a site is incorrectly blocked</li><li>2. Information literacy</li><li>3. Using online search techniques</li><li>4. Using online data bases</li><li>5. Evaluating web resource</li></ol>
15	How do you incorporate Media Literacy and Information Literacy into this assignment?
16	Is there anything else you would like to share that will help inform my study?



Appendix E: Question Format for Technology Administrators

1	What Brand of Internet Filter do you use?
2	Do you block the categories of “hate” and “Sex”
3	Filtering companies offer many categories that could be blocked and many of these are beyond what the CIPA rule requires How did you choose which ones to select? Based on what criteria? Why (IF SO) do you block sites that are not part of the CIPA mandate?
4	What access levels do you allow for teachers and Library Media Specialists, i.e. can they unblock sites themselves
5	What process do you have for blocking/unblocking sites? For: <ul style="list-style-type: none"> <li><input type="checkbox"/> Teachers,</li> <li><input type="checkbox"/> Administrators,</li> <li><input type="checkbox"/> Library Media Specialists, Students and others</li> </ul>
6	<ul style="list-style-type: none"> <li><input type="checkbox"/> What is the procedure for getting a site unblocked?</li> <li><input type="checkbox"/> How long does it take to get a site blocked/unblocked?</li> <li><input type="checkbox"/> Is the person told when the site is “opened”?</li> </ul>
7	Do you have data on how many sites per week/month are incorrectly blocked? – if so, would you share that data?
8	What are some examples of sites that are most frequently blocked that are actually, what we call “over blocked” which means they are actually suitable for viewing?
9	What are some examples of sites that are most frequently blocked that are actually, what we call “under blocked” which means they are actually not suitable for viewing?
10	Is there a long-term consequence for student learning if Internet filtering blocks some information? If so, what is it?
11	Describe the professional development you have had in the following areas (Appendix D): <ol style="list-style-type: none"> <li>6. The filtering product – how it works, what to do if a site is incorrectly blocked</li> <li>7. Information literacy</li> <li>8. Using online search techniques</li> <li>9. Using online data bases</li> <li>10. Evaluating web resource</li> </ol>
13	Describe the professional development your teachers have in the following

	<p>areas (Appendix D):</p> <ul style="list-style-type: none"><li>□ The filtering product – how it works, what to do if a site is incorrectly blocked</li><li>□ Information literacy</li><li>□ Using online search techniques</li><li>□ Using online data bases</li><li>□ Evaluating web resources</li></ul>
14	Is there anything else you would like to share that will help inform my study?

## Appendix F: Initial Survey for Minnesota Technology Administrators

Initial Survey for Minnesota Technology Administrators			
Directions: Please complete the following questions to the best of your ability. Your cooperation is voluntary. This survey will help identify potential social studies teachers for a study on the implications of Internet Content Filters. If you are uncertain of a question, feel free to skip it and move to the next question.			
Question		Number of Responses	Response Percentage
1	I have read the Consent Form and understand my rights and the terms of the study.	62	100%
2	What Internet Content Filtering product does your district use?		
	Smart Filter	6	10%
	Cyber Patrol	2	3%
	Other: Please Specify	51	86%
	Watch Guard	8	
	Sonic	11	
	Iprism/St. Bernard	5	
	LightSpeed/Total Traffic control	10	
	Dans Guardian	1	
	Barracuda	3	
	Chaperon	1	
	Blue Coat	1	
	Fortiguard	2	
	8e6	2	
	IP Cop	1	
	Unsure	5	
3	Please select the categories that your district filters from the list below		
	Adult Only	57	90%
	Sex	56	89%
	Product Information	12	19%
	Nudity	57	90%
	Pornography	58	92%
	Violence	53	84%
	Recreation/Entertainment	13	21%
	School Cheating Information	31	49%
	Jokes	17	27%

	Lingerie	45	71%
	Message/Bulletin Boards	36	57%
	News	2	3%
	Games	38	60%
	Free Mail	31	49%
	Hate/Discrimination	51	81%
	Other: Please Specify	30	48%
	Social Networking sites, Chat	6	
	Gambling,	5	
	Web advertisements,	2	
	Personal Pages	3	
	Criminal, weapons, drugs, Illegal drugs	7	
	Cults,	2	
	Dating,	2	
	Hacking	5	
	Bandwidth wasting, music, video download, YouTube	6	
	Exceptions allowed for site classified as Education	1	
	None	1	
	Full Nudity, Sexual Acts	1	
	Proxy Avoidance,	6	
	Filter meets all the requirements of CIPA Law	1	
	Shopping sites – eBay, Internet Shopping	3	
4	We will separate your responses to these items to the ensure your anonymity in the study		
	I am willing to participate in a follow-up interview	32	65%
		17	35%
	I would like a copy of the results of this study		
5	Personal Contact Information		

## Appendix G: Initial Teacher Survey for Social Studies Teachers

Initial Teacher Survey for Social Studies Teachers			
Directions: Please complete the following questions to the best of your ability. Your cooperation is voluntary. This survey will help identify potential social studies teachers for a study on the implications of Internet Content Filters. If you are uncertain of a question, feel free to skip it and move to the next question.			
Question		Number of Responses	Response Percentage
1	I have read the Consent Form and understand my rights and the terms of the study.	21	100%
2	Do you teach the Social Studies Standard that includes the topics of racial segregation, African American disenfranchisement, and growth of racial violence in the post-reconstruction South, the rise of “scientific racism,” and the debates among African-Americans about how best to work for racial equality?	YES: 14	67%
		NO: 7	33%
3	If you answered Yes to the previous question, please respond to question #2: Do you ask your students to use the Internet to find information to complete assignments for this standard?	YES: 5	31%
		NO: 11	11%
4	We will separate your responses to these items to the ensure your anonymity in the study		
	I am willing to participate in a follow-up interview	13	81%
	I would like a copy of the results of this study	8	50%
5	Personal Contact Information		

## Appendix H: Initial Teacher Survey for Health Teachers

Initial Teacher Survey for Health Teachers			
Directions: Please complete the following questions to the best of your ability. Your cooperation is voluntary. This survey will help identify potential social studies teachers for a study on the implications of Internet Content Filters. If you are uncertain of a question, feel free to skip it and move to the next question.			
Question		Number of Responses	Response Percentage
1	I have read the Consent Form and understand my rights and the terms of the study.	11	100%
2	Do you teach the Health Standard that includes Disease Prevention, HIV/AIDS, Reproductive Systems and Human Sexuality?	YES: 11	100%
		NO: 0	0%
3	If you answered Yes to the previous question, please respond to question #2: Do you ask your students to use the Internet to find information to complete assignments for this standard?	YES: 6	60%
		NO: 4	40%
4	We will separate your responses to these items to ensure your anonymity in the study		
	I am willing to participate in a follow-up interview	6	67%
	I would like a copy of the results of this study	6	67%
5	Personal Contact Information		

## Appendix I: Participant Information

	Date	Length	Age	Education	FILTER	State Region	Position	Participant
	<b>3.10.08</b>	<b>25</b>	<b>NA</b>	<b>MS</b>	<b>Fortinet</b>	<b>1 Metro</b>		<b>A4</b>
1	2.12.08	25	51-60	MS			Health	T1
2	2.4.08	25	31-40	BA+30			Health	T2
	<b>2.19.08</b>	<b>20</b>	<b>NA</b>	<b>ED</b>	<b>Chaperone</b>	<b>1 Metro</b>		<b>A3</b>
3	2.9.08	20	<30	BS			Health	T3
	<b>2.24.08</b>	<b>35</b>	<b>NA</b>	<b>MS</b>	<i>Blue Coat</i>	<b>2 Central</b>	<b>Director</b>	<b>A3</b>
4	2.11.08	20	<30	BS+10-15			Health	T4
5	2.11.08	20	<30	BS +30			Health	5
	<b>2.21.08</b>	<b>30</b>	<b>NA</b>	<b>BA – not teaching</b>	<b>Total Traffic</b>	<b>2 Central</b>	<b>Director</b>	<b>5</b>
6	2.18.08	19	51-60	Masters			Health	T6
	<b>2.19.08</b>	<b>30</b>	<b>NA</b>	<b>BS+</b>	<b>Iprism-St. Bernard</b>	<b>3 N West</b>		<b>A6</b>
7	2.3.08	35	41-50	Masters	<b>SmartFilter</b>	<b>4 E. Central</b>	Social Studies	T7
	<b>2.19.08</b>	<b>29</b>	<b>NA</b>	<b>MS</b>	<b>Web Blocker</b>	<b>5 S. Central</b>		<b>A1</b>
8	2.4.08	21	51-60	Masters CI	<b>SmartFilter</b>	<b>N. Central</b>	Health	A9
9	2.9.08	25	41-50	Masters CI			Social Studies	A8

Appendix J: Code Used During Data Analysis

No	Central Tendency and Theme	Description/Criteria for Inclusion		
		Administrator	Teacher	
<b>1</b>	<b>Lack of clarity</b>			
1.1	Content, filtering, protects children	A6 A1	T2 (twice) T4 T6 T1	T3 T8 T7
1.2	No long- term consequences	A2 A6	T1 (twice) T4 T5	T7 T6 T8
1.2.b	Students are bored, frustrated	A1	T8 T7 (3 times)	T4 (3 times) T2
1.3	Teachers are frustrated	A1	T8 (3 times) T7 (5 times)	T2 TL6
1.4	Lack of requests	A3 A4 A6	T8 (3 times) T7 (4 times)	T2 (twice) T1
1.4b	Don't make requests	A4 A1 A3	T8 T1 (twice) T2 (twice)	T4 T5 T3
<b>2</b>	<b>Going beyond</b>			
2.1	Talks about what blocks sites, evaluates them as "not appropriate"	A3 A6 (twice), D5	T4 T2	
2.2	Talks about blocking sites that are NOT porn, extreme or violent	A5 A2 A3 D6	T8 T7 (4 times) T6	T4 T3
2.3	Talks about restricting bandwidth, usage	A5 A4 A1(does not) A6 A3 A2	T7 T6 T2 T2 ( none knew sites were blocked to restrict bandwidth)	
<b>3</b>	<b>Role of leader</b>			



3.1	Impacts user	A6 (twice) A5 W4 A4 A1			
3.2	How/who chose category	A5 A3 A4	A1 A5 A6	T2 T5 T4 T3	T8 (3 times), T6, T9 (twice
<b>4</b>	<b>Interpretation</b>				
4.1	Training	A1(twice) A4 A2		T6 (twice) T2 (4 times) T7 (3 times)	T9 (twice) T4 (3 times) T1
4.2	Reference to .gov, school/district web sites & data bases media, information literacy, multiple perspectives	A3 A4A6		T8 T3 (3 times) T7 (twice) T4 (twice)	T5 T6 T9 T6