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	*Protecting students*	10
	Long term consequences	7
	Frustrated teachers	6
	Lack of requests	15
2. Internet content filters blocked more than the Children Internet Protection Act requires.	*Access*	6
	Categories	10
	Bandwidth	9
3. The role of the district technology administrator within the school system appeared to impact students' and teachers' experiences on the Internet	*The criteria used*	13
	Impact on user	6
4. There was a wide range of interpretation among teachers responding to the survey about what constituents "multiple perspectives" and "information literacy."	*Training*	14
	Multiple perspectives and information literacy	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 a 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 administers 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 that 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 administers 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! (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.