

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 19th 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, 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, 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.

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 GBLT 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 make 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. 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 to consider formalized policy and procedures around the CIPA law to help guide school district decision-making. Lacking a formal policy, school districts that 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 ongoing 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 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 21 st 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 managed 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.