

Chapter Three

Methodology

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

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

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

Specific Questions that Guided the Research

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

Design

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

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

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

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

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

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

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

3. Collecting the data. It is necessary to develop data collection methods and a data collection instrument. It is highly recommended to audiotape

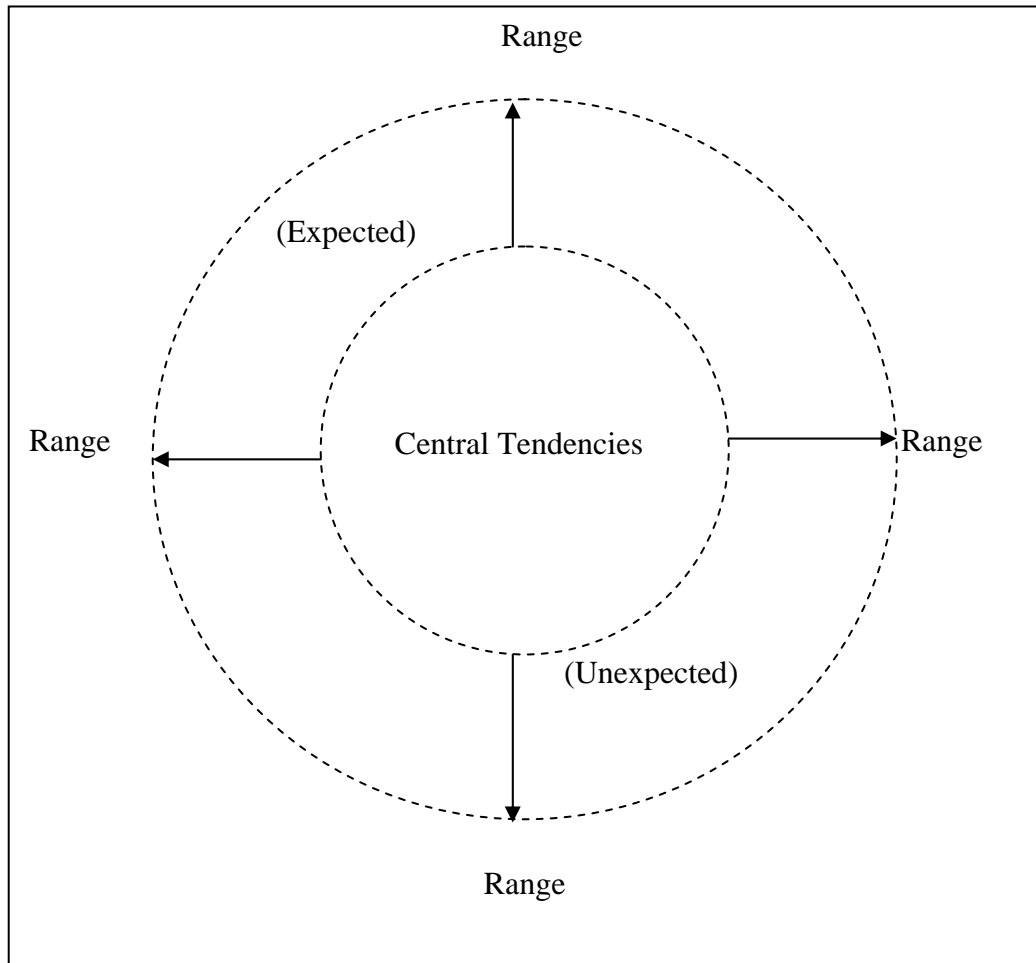
interviews (with permission of the participants) (M.L. Radford, 1999). Phone interviews were taped for this study. It is helpful to begin the interview session with a positive experience (Flanagan, 1954). For this study, teachers were asked to recall a positive Internet search experience (a positive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

Additional specifications to consider include how much data to collect and when to collect it. Flanagan (1954) provided some guidance on sample size, indicating that it must be determined by the type of activity studied. This researcher decided to collect data midway through the school year because the teachers would be preparing to teach or in the process of teaching the identified standards. It was difficult to pre-determine the optimum sample size because the study specified inclusion of districts with both highly restrictive and minimally restrictive Internet content settings. One strategy used to determine sample size was to collect the minimum number of critical incidents and begin an analysis to see if enough data emerged. If data were insufficient, data collection would continue. If not, data collection would stop (M. L. Radford, 2006).

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

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

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



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

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

Criteria for Selecting School Districts, Teachers, and Technology Administrators

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

The researcher reviewed school district web sites and membership lists of the Minnesota Educational Media Organization (MEMO) and the Minnesota Department of Education (MDE) to identify 345 Minnesota school districts that had an administrative position assigned to technology management. In keeping with the characteristics of qualitative research (Merriam, 1998), sampling procedures were purposeful rather than random due to the various criteria the

researcher needed to meet in order to collect valid data. The researcher e-mailed an electronic survey to each of the technology administrators to find out what Internet content filter each district used and the categories that the district filtered. In addition, the survey asked the technology administrators if they were willing to assist with the study by participating in a structured telephone interview.

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

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

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

standards. The following academic standard was required in all of the participating school districts:

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

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

Data Collection Method

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

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

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

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

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

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

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

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

Data Analysis

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

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

Trustworthiness of Data

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

Limitations of the Study

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

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

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

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