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Technological developments facilitating the creation and dissemination of video information have resulted in an increase in free online material, with several sites directly targeting the needs of educators. Investments in the public school system's information technology resources have resulted in a gradual improvement in educators' ability to utilize online video for instruction. Testimonies from those in the education community as well as research from information scientists on educators' information use suggest the impact that these developments have had on educators' information seeking behavior. This study explores how 8th grade Social Studies teachers in Wake County are currently using online video resources, what search strategies they have developed to locate content appropriate for their instructional needs, and what the obstacles to their successful use of video are.

Headings:

Information needs/Educators
Information seeking behavior
Educational video
Online video collections

MAKING IT REAL FOR STUDENTS: HOW SOCIAL STUDIES TEACHERS FIND
AND USE VIDEO FOR CLASSROOM INSTRUCTION

by
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Introduction

       Video has a long history in education. Proponents of its use in classrooms cite video's ability to enhance learning in all students, in addition to its expected success with auditory and visual learners (Boster et al., 2007; Cavanaugh, 2008; Doyle, 2006). As technological developments have facilitated easier creation, dissemination, and use of video for everyone, the ways that educators acquire and utilize this medium have also changed. In addition to the increase in video available on the Internet, the marked rise in technologically equipped classrooms (NCDPI, 2006a; School Technology Infrastructure Planning Guidelines, 2006) has enhanced the educator's ability to share these resources with students. Teachers are now more likely than ever to search subscription-based or free online sources independently from the convenience of their classrooms. The present study is an attempt to better understand how these developments have influenced the video information seeking behaviors of educators. A rapid increase in online material, advances in classroom technology, and developments in the ways that users learn about and share resources are all aspects that potentially affect these behaviors.

       Describing information seeking behaviors is a task always more complex than it first seems. Case (2006) summarizes this point, "It is difficult to generalize about a behavior that varies so much across people, situations, and objects of interest, and so much of it takes place inside a person's head" (p. 5). Educators' information seeking behavior is in a large part determined by the audience they teach; thus, in an attempt to control for some of these variables, this study emphasizes the behaviors of Social Studies

educators of middle and high school students in North Carolina. I chose to investigate this particular group of users based on my awareness of local video oral history projects that could be relevant to the Social Studies curriculum. Research that reveals the searching behaviors of potential users could inform the design of these collections and ultimately facilitate accessibility and increase use.

Literature Review

Four research perspectives inform this inquiry into the use of video resources by educators. They include reports on infrastructure and technology, discussions among educators and librarians concerning tools and technology, organization styles and tools of online video collection sites, and the information seeking behaviors of educators.

Infrastructure and Technology

Technological infrastructure has a direct effect on the likelihood that educators will use video in the classroom. The National Center for Education Statistics (NCES) has researched public school access to information technology since 1994, reworking survey instruments annually in response to their previous results. Within the first decade of NCES research, the percentage of public school instructional rooms with access to the Internet grew from 3% to 94% (Wells & Lewis, 2006). While this increase in access is an obvious improvement, the type of connection used is another variable likely to impact video-related activities such as downloading or streaming video. The NCES reports that 94% of small schools and 100% of large schools had moved from dial-up to broadband by 2005 (Wells & Lewis, 2006).

Last year the NCES survey of teachers' use of educational technology found that, 94% of teachers use the Internet for classroom preparation, instruction or administrative purposes "sometimes" or "often" (Gray, Thomas & Lewis, 2010).

A separate online survey conducted in 2008 polled 1,293 elementary and middle school teachers and principals about the Internet in education. The resulting report, *Schools and Generation 'Net* (Interactive Educational Systems Design Inc., 2008), reveals that 79% of teachers use the Internet at least several times a month for instruction while more than 80% indicated a need for multimedia resources, including video, to motivate and stimulate students. In light of this need, 73% of principals and 69% of teachers agreed that they would benefit from assistance finding materials that meet their state's curriculum standards (Interactive Educational Systems Design Inc., 2008). In North Carolina, the Department of Public Instruction (DPI) reports that all districts have access to high-speed broadband Internet (NCDPI, 2006a) and 99% of all classrooms are Internet-connected (NCDPI, 2009).

If an educator is able to use the Internet to search for and download a video file, successful use further depends on the capability to share it with students. The availability of televisions, VHS or DVD players, projection devices, and projection screens varies widely among schools and districts. Based on surveys administered in 2009, the NCES (Gray, Thomas & Lewis, 2010) reported that 36% of teachers have LCD (liquid crystal display) projectors and 48% of teachers have DLP (digital light processing) projectors available as needed or in the classroom every day. Of those teachers with access to a projector, 72% use them "sometimes" or "often" for instruction. Statistics on the availability of these media resources for North Carolina schools are unavailable but the

present study will consider how this has affected the experiences of a small sample of teachers in Wake County schools.

Discussions in the Education Literature

There are many examples of teachers and librarians communicating about where to find video resources and how to integrate them into instruction. Johnson (2005), a media center librarian, reviews three online commercial video streaming sites, promoting video resources as "the answer to time constraints, budget crunches, and illustrating complex lessons" (p.58). With experience as an educator, technology coordinator, and designer, Doyle (2006) proclaims the arrival of no-fuss video-on-demand (video streaming) and describes the many ways it enables teachers to add value to their lessons. A public librarian advocates for the educational uses of a variety of online video including news video, television shows, screencasts, machinima (three-dimensional computer animation), live video, and video blogging (King, 2009). King structures his technology review in a simple, how-to format, explains the different devices that people use to watch video, and offers a brief lesson on how to create video and put it on the web. Reiterating his point about the utility of communicating information with video, he suggests that teachers who integrate video into their curriculum are preparing students for the "multimedia, web-based world" (p. 16) of the future.

In *YouTube in the Science Classroom*, a science teacher uses a similar "toolkit" style to describe how he has gone beyond using You Tube to augment lessons and now collaboratively creates "You Tube units" with colleagues (Everhart, 2009). Everhart and his colleagues outline the criteria they apply to their searching; age appropriateness,

alignment with instructional objectives, audio and video standards, accuracy, and appropriateness in terms of video duration. Everhart suggests multiple indications of the value of You Tube units. For one, students are able to learn at their own pace through pausing and replaying video. Secondly, the comments and ratings features on the site encourage interactivity via criticism and commentary. He also mentions the possibility of student projects that would involve students collaborating with each other to create content for the You Tube site, as well as video that could be used by teachers for their own professional development.

A staff writer for Education Week, Sean Cavanaugh (2008) describes how teachers are using free online audio, video, and course materials from MIT faculty lectures. The website, called Highlights for High School (http://ocw.mit.edu/OcwWeb/hs/home/home/index.htm), is an extension of MIT's OpenCourseWare initiative. Teachers offer several reasons for using the collection; to better reach audiovisual learners, to reinforce concepts already covered in class, to underscore the importance of the material, and to convey the idea for some students that higher education should not be considered out of reach. One teacher interviewed for the article also cited the usefulness of the online lectures for new teachers preparing to instruct on an unfamiliar subject.

While examples of how to use video for science and math instruction are the most common (Boster, 2007; Brown, 2006; Harwood & McMahon, 1997; Pace & Jones, 2009), teachers are finding ways to incorporate this format into a variety of subject material (Donlevy, 2007). For example, video is often used to support language instruction (Tschirner, 2001; Weyers, 1999) and, relatedly, cultural phenomena (Herron,

Cole, Corrie, & Dubreil, 1999). Some have described using documentary media for special topics, such as the Chinese immigrant's experience in the United States (Donlevy, 2003). Hammond and Lee (2010) discuss the "amorphous aims of social studies and the infinity of possibilities afforded by digital video" in an editorial of the forthcoming book, *Teaching With Digital Video: Watch, Analyze, Create.* Their discussion emphasizes the innovations that video offers a subject that is, similar to video, characterized by continual evolution. For video this evolution has been both in terms of technology and use.

In contrast to users who seek information for personal use, educators have a more stringent responsibility to evaluate online sources and make decisions about whether or not materials are appropriate for their students. Among other factors, they may use criteria such as age appropriateness, currency, accuracy, alignment with topic and relevance to curriculum standards (Everhart, 2009; Recker, Dorward, & Nelson, 2004). Everhart (2009) emphasizes the multi-faceted nature of this process and, while his experience demonstrates success, it raises the issue of the time commitment that incorporating this resource requires. As it is precisely this time-intensive aspect of searching for appropriate video that elicits complaints from educators (Brown, 2006), designing a collection that allows the user to easily and quickly find what they are looking for is key. Librarians and teachers herald the usability of sites with content searchable by grade level, subject, curriculum standards, and video duration (Johnson, 2005; King, 2009). Hearing this demand, several sites-many of them commercial- have taken the opportunity to develop according to the needs of educators and might be seen as bellwethers for usability.

Video Collections That Target Educators

Discovery Education (www.unitedstreaming.com) is a very popular resource that allows search by keyword, subject, grade level, and state curriculum standards. The site offers additional tools such as an assignment builder, a quiz center, lesson plans, and a writing prompt generator. Clearly, educators recognize the added bonus of this type of associated content (Hanson & Carlson, 2005; Johnson, 2005). Another commercial website, New Dimension Media's CCC! (www.ndmccc.com), similar to Discovery Education's site, also allows teachers to search by subject, keyword, curriculum, or curriculum standard. The user chooses between an entire video, or any of the "teachable segments" it is broken into. Clearvue & SVE's site (www.PowerMediaPlus.com) is searchable by subject, grade level, and state correlations (curriculum standards). The site features the ability to individualize a user's account according to their instructional needs.

Sites with freely available material that have made efforts to target teachers are organized similarly to commercial sites. Annenberg Media (www.learner.org/resources) allows users to browse by discipline (subject) and by grade. Within a program area, teachers can view the course outline, which indicates objectives associated with video content and provides (site-authorized and posted) reviews by librarians, teachers, and publications. Another is NOVA Teachers (http://www.pbs.org/wgbh/nova/teachers/), which features video segments culled from NOVA broadcasts. The site organizes teacher resources into four subpages; "class-based interactives," "media-rich lesson ideas," "teacher guides," and "Teacher's Domain." Teacher's Domain is a multimedia library that contains science video, interactive materials, and lesson resources. Teacher's Domain can be browsed by K-12 subject, professional development resources, and

"special collections," which includes a public media series, state and local collections, and curriculum topics and themes.

The websites considered above also offer some indication as to how educators may prefer video and video segment representation in terms of surrogates. Each site provides a minimum of a still frame and a video title. Most have some descriptive summary of the video: one sentence at minimum. In addition to occasionally re-listing the selections made to browse or filter the search, the video entry sometimes provides the length of the video or video segment or the date the video was created.

Studies on the Information Seeking Behaviors of Educators

Recent scholarship has illuminated the information seeking behaviors of a variety of users but, as Brown (2006) points out, "the information needs of educators and the research problems related to their information seeking and use have not been extensively documented" (p. 41). Brown cites the large number of studies focused on students and health care professionals and, in agreement with Brown's point on the dearth of educator studies, Perrault (2007) refers to numerous examples centered on professionals and youth and children. While a certain amount of the research on educators that does exist represents those at the post-secondary level (Borgman et al., 2005; Hannah, 2005; Tahir, Mahmood, & Shafique, 2008; Wallis, 2006), there are several notable studies in addition to Brown and Perrault that represent educators of younger students (Chang, 2004; Karchmer, 2001; Khoo, 2006; Lawley, Soergel, & Huang, 2006; Patuelli, 2007; Recker et al., 2004; Small, Sutton, Eisenberg, Miwa, & Urfels, 1998). Within this literature,

however, little focuses specifically on educators seeking video (Brown, 2006; Brown & Bowers, 2006; Lawley, Soergel, & Huang, 2006).

Brown (2006) examined ways to improve teacher access to a specific collection: NASA's educational programs hosted by the Open Video Project. Brown used a multi-method approach to investigate his research question, "in what ways can digital library collections better meet the needs of K-12 educators in their retrieval and use of Web based video material?" (p. 90) The first part of Brown's research involved an evaluation of how the existing system was being used and included an online survey that addressed what features these users desired for an online video collection. In addition to gathering demographic data on participants, the current types of resources they use, and frequency of use of certain resources, the survey collected educators' opinions about what features make a website useful to them. Respondents chose three features of websites from a list and ranked them as 1st, 2nd, or 3rd most important. At the top of the list was "easy to search," followed by "usually has the most relevant information," "multiple resources available," and "from a reputable source". Participants were also asked about which instructional tools they would most like to find on a site that provided online video. In order of importance, the tools valued most by educators were lesson plans, activities, and ideas, simulations, and access to professionals. Respondents mentioned problems with computer hardware, the time it takes to locate video, and the expense of access to websites as their top challenges to the use of online video. Brown also explored preferred surrogates for videos and video segments: his work offers direction for digital libraries that seek to broaden their audience to include educators and students.

Small, Sutton, Eisenberg, Miwa, & Urfels (1998) employed a three-pronged approach to study about how and why Pre K-12 educators use the Internet for instruction. They employed a content-analysis of Internet-based instructional resources, a content-analysis of questions submitted to the AskERIC virtual library, and an electronic questionnaire that sampled 260 ERIC database users. Of those polled, 85% indicated using the Internet "often" or "sometimes" for instructional planning. Social Science educators were both the most frequent users, as compared to instructors of other subjects, and the group that self-reported as the most successful with searches. Findings of the content-analysis of Internet-based instructional resources informed multiple-choice parts of the questionnaire. For example, educators were asked to rate 28 information elements on their importance for lesson planning, including "the eight common terms from both content analysis (purpose, grade, subject, topic, materials, grouping, location, and assessment), as well as terms derived from merging similar terms (e.g. instructional style and instructional strategies) and adding one new term (standards) because of the recent development of and emphasis on state and national curriculum standards" (p. 9). Items were ranked on a five point Likert scale ranging from "not important" to "important". Ten of the 28 elements were "important" to lesson planning; topic, subject, content description, materials (resources necessary for instruction), forms (handouts, worksheets, grade level(s), purpose/rationale, goals, objectives), outline of lesson, summary and assessment (evaluation of student learning). Educators also indicated two elements that add value to their searches: links to state and national standards and comments from colleagues who have used the resource. The aforementioned ten instructional elements as well as the two elements that educators indicated add value to their searches were

ultimately used to inform the metadata profile that describes resources in the Gateway to Educational Materials (GEM) Project system.

Karchmer (2001) collected data from thirteen teachers-considered by their colleagues to be expert users of the Internet- about how the Internet had influenced literacy and literacy instruction in their K-12 classrooms. Combining information gathered through semi-structured interviews, reflective journals, and various types of documentation voluntarily provided by the teachers (e.g. resumes, web pages, and published articles), Karchmer categorized data into eight themes that included evaluating the appropriateness and accuracy of Internet resources. Teachers reported having to spend time considering whether or not resources were appropriate for their students in terms of reading level and content, and that the interaction of text and textual aids available online in some cases complicated this evaluation. Although the subjects of Karchmer's study were not evaluating online video, their point about how added dimensions complicate the evaluation process (in their case the interaction of text and textual aids) is related, and can be taken a step further. As Yang (2006) points out in her review of studies addressing video relevance criteria, evaluation and assessment becomes more complex due to the "complicated spatial-temporal characteristics of videos" (p. 11). Another point frequently mentioned by teachers in Karchmer's study was evaluating the accuracy of resources, an issue that consistently plays a role in online video selection (Everhart, 2009; Johnson, 2005; Recker, Dorward, & Nelson, 2004).

In a study that is unfortunately only available in Chinese, Chang (2004) investigated the information need, seeking, and use behaviors of elementary school educators teaching about Taiwan's cultural resources. In the article's abstract, Chang

reports that the results of her qualitative study lead to a better understanding of these behaviors, identification of key characteristics of resources useful to teachers and, further, inform the development of guidelines for digital collections with local and cultural resource materials.

Recker, et al. (2005) utilized electronic surveys, interviews, participant observations, and server log file and artifact analyses methods to investigate various questions relating to educator use of digital libraries. The study group comprised 100 educators who were participating in workshops on use of the Instructional Architect (IA), a service that aids in use of the National Science Digital Library (www.nsdl.org) for instruction. Ultimately, Recker, et al. sought to discover how participants search for and use educational resources as well as to assess the usefulness of the workshops and the National Science Digital Library's resources and tools. The authors found that while teachers consistently asserted the value of the collection and related tools, "persistent use [of the collection and tools] remains difficult to obtain" (p.6). Discussing possible explanations for this, the authors mention teachers' reported time limitations, which have a direct impact not only on searching for resources in general, but also on the likelihood of adopting new technologies. This is an important point for resource designers to bear in mind. Other findings of interest to designers were the importance of easy to understand language, user interest in incorporating non-digital library resources, and an emphasized need to be able to identify grade-appropriate materials. Participants also indicated a specific interest in resources aligned to U.S. state and federal teaching standards, however, "to date, few digital libraries have incorporated this kind of metadata as it is expensive to implement" (p. 7).

Khoo (2006) reports on a National Science Digital Library (NSDL) survey of 167 users, contacted via information they had provided to NSDL at earlier outreach activities. The participants, who provided opinions about the usability of the resource, comprised a range of NSDL users including librarians, school administrators, and educators at the primary, secondary, and higher education level. Results of the survey were overwhelmingly positive in terms of the perceived value of the resource. However, participants indicated difficulties in overall site navigation as well as successful filtering of results to reflect their chosen topic and age level. Additionally, some respondents reported technical difficulties with the site when accessed from older computers, as well as with firewall barriers at some schools. While the NSDL offers access to text, interactive resources, audio, data, images, and video, participants were not asked to specify the type of resources they were seeking. Thus, whether or not difficulties were due to format-specific issues cannot be determined. However, the fact that in many cases educators were frustrated by clumsy site navigation and technical difficulties is an important conclusion in itself. These obstacles will discourage use of a site no matter how valuable its resources are believed to be. Users' responses about the quality of materials available through the library indicate a certain degree of trust in the source, which can have the effect of reducing the amount of time devoted to evaluating the accuracy of resources. However, this will not overcome an inability to pinpoint results that satisfy the information seeking need.

Lawley, Soergel, & Huang (2006) observed eight teachers in the classroom searching a video oral history collection for resources as they planned their lessons. Among the behaviors observed were "a bi-directional influence between lesson planning

sessions and search sessions, heavy use of browsing by teachers, use of generic scenarios as query/evaluation frameworks, and task-specific relevance criteria" (p. 5). In addition to these trends, the researchers found that the educators' relevance criteria was typically very complex and individualized. For example, rather than being able to just match results to a topic search, teachers sought resources that would relate to multiple themes in their lesson planning or were influenced by quality-related considerations (such as the resource's message being a positive one or a specific connection to a student). The authors concluded that trying to explain educators' criteria in terms of topical relevance was insufficient and that "teachers' relevance criteria are a valuable inspiration for user-centered, systematic access to educational media" (p. 10).

Maria Cristina Pattuelli (2007) interviewed high school and middle school Social Studies teachers from Chapel Hill about how they search, select, and incorporate materials into their teaching. All six of the study participants indicated that they use Google to begin their Internet search for digital primary source materials, but most often end up exploring within several of the same sites for materials, including the Library of Congress American Memory collection, UNC-Chapel Hill's DocSouth, George Mason University's History Matters, and PBS Teacher Source. All participants preferred searching by topic keyword related to the subject matter, with a few participants indicating they sometimes use time period to filter results. Using detailed input about the teachers' curriculum needs, Patuelli constructed an ontology for a specific cultural heritage collection and evaluated how well it facilitated use of the collection by a set of middle and high school social studies teachers (different from those previously interviewed). Pattuelli concluded that including the end user in the engineering of

ontologies is effective and important in constructing a tool that will increase use of the collection. However, Pattuelli acknowledges that significant time and effort that was added to the ontology construction process thus weakening the method's generalizability. Its usefulness would depend on "the size of the ontology being built, the nature of knowledge domain, and the type of end users targeted" (p. 156).

Brown and Bowers (2006) came to similar conclusions concerning the time and effort required for this degree of user-group customization when presenting the results of a case study for metadata description of video. The teachers interviewed for their project reported their preference for resource organization by curriculum objectives. When asked about the usability of video collections organized by metadata related instead to visual and theme based content (metadata with the potential for automatic extraction), teachers responded that, while descriptive, the metadata "lacked information they could relate to their curricular needs in a form that was readily accessible" (p. 345).

Implications for the Present Study

The data available on school resources offered an indication of the recent and rapid changes in available technology that have a practical impact on educator use of video. Exploring this question locally will reveal what effect this issue has for educators in some of Wake County's schools and how they are affected individually. Additionally, having educators discuss their experiences may reveal how the role of technology has differed at different schools or over the course of their teaching careers, and the results it has had on their information seeking behavior.

In spite of the fact that the published reports from educators and librarians about tools and technology may have disproportionately highlighted success stories of more innovative or tech-savvy users, the wide-ranging experiences and methods being promoted are inspiring. Brown's (2006) survey of educators indicated a significant reliance on Discovery Education for video resources. Mardis' (2009) research reiterates this point, observing that alternatives for school-based video subscribers are limited. However, my search revealed a number of websites offering free video, much of which seems to be of good quality and targeted to social studies teachers. Through my conversations with educators I will seek to discover how factors such as their school's subscription choices, their experience teaching this particular subject to this particular age group, and their extent of knowledge of video websites have an effect on their use of video. Additionally, I hope to get a good sense on how heavily educators rely on independent searching for materials, versus an emphasis on collaboration with other teachers and librarians for assessing video resources.

My review of established online video collections serves to inform my questions about how educators prefer a site to be organized in order that it best facilitates their search for resources. Most of the sites provide filtering by the elements cited as important to educators in the literature on information seeking behavior, such as age or grade level, topic, and curriculum standard. However, many of the sites provide additional means of searching, for example by resource format or a collection theme. Are there ways that educators would like to search that are not available on these sites? Are there differences in educator preference for searching related to the age level or the subject that they teach? What is the value of user-added review and are educators likely to provide this?

Review of the literature on the information seeking behaviors of educators provided an overview of methods that could be used or adapted for the present study. Additionally, since these studies discuss seeking resources in various formats online, they reveal a broad set of behaviors. While those indicated may be consistent regardless of resource format, the issues raised are useful to guide an inquiry into which issues might be unique to seeking video information. Although video use has a considerable history in education, relatively recent changes in available technology and resources are likely to have impacted the information seeking and use behaviors of its supporters. This fact, in addition to the general lack of research on the video information seeking and use behaviors of educators of grade school students, prompted the present study.

Methodology and Analytic Techniques

Rationale for Study Methods

The purpose of this inquiry is to explore how social studies educators are currently using online video resources, what search strategies they have developed to locate content appropriate for their instructional needs, and what their obstacles to successfully using video are.

In order to get a sense of educators' current practices, a qualitative method employing semi-structured interviews was chosen for several reasons. For one, details specific to the educators' environment such as school infrastructure or student body demographics are likely to influence their information seeking and use behaviors. I felt that a face-to-face interview would be more likely than a survey to capture some of the important differences resulting from these fine points. According to Babbie, (2001)

interview methods have the advantages of generally producing fewer incomplete responses than surveys, having better rates of completion, and facilitating face-to-face observations not possible with other methods. Second, since I would be asking about behaviors that the user would be unlikely to have had to describe previously, I felt that a face-to-face interview would allow the interviewee more communicative freedom and facilitate a clearer understanding on my part. Third, I felt that, in addition to the information I would gather via the interview, I would benefit from being able to observe the classroom and its facilities. Lastly, conducting a face-to-face interview facilitated additional data collection through a think-aloud protocol. By following structured questions with a think-aloud protocol, the interviewees would have a chance to demonstrate the behaviors they had described to me, or perhaps reveal behaviors they were not conscious of. Additionally, by talking through their habitual use of a site, site features or educator behaviors I had not asked about might be uncovered. Ultimately I hoped this would result in a better sense of the criteria that educators use to determine whether or not contents of the video matched their information need. I would also be able to ask specifically about whether or not their assessment is influenced by additional content such as peer commentary or reviews.

Sampling Procedures

In order to get a sense of what makes websites more usable to educators, it was necessary to get input from teachers who are already familiar with utilizing online video to support classroom learning. Secondly, while the content of local oral histories may have applications in a variety of subject areas (Patuelli, 2007), Social Studies teachers of

older students are more likely to be able to relate this type of content to their instruction. Specifically, as part of its Standard Course of Study, North Carolina has established curriculum goals that emphasize the geography and history of the state for 4th graders and the creation and development of the state for 8th graders. For 8th grade Social Studies teachers this means having students "examine the roles of people, events, and issues in North Carolina history that have contributed to the unique character of the state today" (NCDPI, 2006b). I felt that local oral histories might be of particular interest to this demographic, thus I targeted 8th grade Social Studies teachers.

I sought participants through a few personal contacts involved in education and by e-mailed request, using contact information available on public school websites. I hoped that my initial contacts might lead to a snowball sample of other educators (Babbie, 2001). I submitted the same request (Appendix C) to all prospective interviewees. If a teacher responded positively, we set up an appointment that I guaranteed would take no longer than 20-25 minutes, as indicated in the initial e-mail request. In an initial round of e-mails to 15 prospective interviewees, six responded, four of which resulted in interviews. I sent a second round of e-mails to 15 more teachers a week later. Seven teachers responded to my request and six were able to make time for an interview. After completing the tenth interview, I decided that the cumulative data was sufficient as I was no longer hearing new or notably different information (D. Barreau, personal communication, April 21, 2010).

Interview Methods

An interview guide was created with input from my advisor, who also suggested use of a checklist (Appendix B) during the meeting. Both the interview guide and the checklist were informed by findings from the literature review. For example, educators were asked about what the technology available to them allowed or didn't allow them to do (Infrastructure and Technology), how they communicated about video or video use (Discussions in the Education Literature), what ways to browse or filter a search were most useful (Video Collections That Target Educators), and how educators decide whether or not a video will be useful and appropriate for instruction (Studies on the Information Seeking Behaviors of Educators).

Each interview began with the same questions about how the teacher uses video, where he/she finds video online, what sites are best, and why (Appendix A). When appropriate I employed a critical incident question (Luo & Wildemuth, 2009) relating to an instance during which the educator succeeded in finding exceptionally useful video. The interviews varied due to the interviewee's familiarity with online video sites and frequency of video use, but in all cases I asked them about how they use video, how they search, which sites were best, and how they make decisions about what video is appropriate for their needs.

As a secondary means to encourage interviewees to describe and explain their information-seeking habits, I invoked the think-aloud protocol to elicit "reactions, feelings, and problems that the subjects experience during task performance" (Oh & Wildemuth, 2009). Additionally, I used the think-aloud protocol data to verify the interviewee's earlier responses about website preferences. The interviewee was asked to

visit a website of their choice. In case a teacher had no favorite, I included five pre-

selected sites in the Interview Guide (Appendix A) chosen from a larger resource list

provided to participants at the conclusion of our interview (Appendix E). In three cases,

the participants were not able to use the Internet during our interviews. However, the

seven interviewees who were able to go online chose to visit a site with which they were

familiar.

I approached the think-aloud protocol from the theoretical perspective of speech

communication, as proposed by Boren and Ramey (2000). As previously stated, within

the purposive sample of middle and high school social studies teachers, a further

requirement for participation in the study was some degree of experience searching for

and using video for instruction. Volunteers meeting these requirements presented a varied

group in terms of the length of time they had been using video, the frequency with which

they searched for video, their depth of knowledge about site offerings, and the number of

video sites with which they were familiar. As such, I employed techniques during the

think-aloud protocol that would set the stage for productive interaction and use "the

nature of speech to keep verbal reports undirected, undisturbed, and constant" (p. 269).

For example, in order to cast the participant as expert and myself as

researcher/apprentice, I asked teachers to show me how they would search on a site with

which they were familiar. As mentioned, I had website suggestions ready if necessary,

but my preference was that participants would use a site of their choosing. I asked

questions that I hoped would encourage the teachers to treat me as an apprentice, such as

"what kind of stuff is on this site?" or, "how do you search on this site?" Secondly, I

responded to the interviewee's contributions with acknowledgment tokens that would

indicate understanding and interest but would be less likely to result in a change in speakers (Boren & Ramey, 2000).

All interviews were recorded using a digital Marantz PMD660, once I had secured the participants' permission. Interviewees were also given a copy of the IRB form: Information About a Research Study (Appendix D) at this time. While conducting the interview, I used the interview guide (Appendix A) and checklist (Appendix B). Each interview began with a request for input about how educational video is used, but following that initial question I did not necessarily ask them questions in the order listed. During our conversation I attempted to fill out the checklist and make notes related to the listed questions, but in many cases a teacher would partially answer a question when asked directly and then revisit the question at a later point in the interview. Many responses did not fit into the possibilities I had provided in the checklist. For these reasons, a transcription of the interview was very useful to make certain that none of the information a teacher provided was missed. The interviews were transcribed into Microsoft Word. As mentioned, the transcript helped to analyze educator responses to the pre-determined interview questions but also provided a sense of the issues that they most closely related to the process of seeking and using video. The interview contained relatively few questions in order to privilege time for narrative explanation on the part of the educator. My hope was that this would result in their being able to discuss the issues that they felt were important, or the points that had to be made in order to tell me how they feel about searching for and using video.

Typically the transcription corresponding to the earlier part of the interview addressed the initial and broader questions about video searching and use and helped to

fill in the related checklists. For dialogue that occurred during the think-aloud protocol, I grouped phrases into those that reflected positive feelings towards a site's functionality, navigability, or appearance, and those that reflected negative feelings towards the same three aspects of a site. I also grouped phrases characterized by sentiment that was neither positive nor negative. By revisiting broad questions about website usability with a specific resource in the think-aloud protocol, I hoped the interviewees would reiterate or expand on their previous responses (Silverman, 2010). Through this repetition I hoped to address the aspect of validity in the qualitative interview.

Before concluding the interview I also offered the interviewee a Resource List of free online video sites (Appendix E) and an educational DVD produced by the North Carolina Language and Life Project, about dialect and culture in North Carolina. Several of the participants indicated that they had used material from the NCLLP in the past and would be able to put this resource to use. Additionally, upon looking over the Resource List, most were surprised at the number of websites that offer free video and noted that they felt the resource would be useful to them.

Limitations

There are real and possible limitations of this study. My purposive sample of educators familiar with using illustrative video in the classroom will not represent the information seeking behaviors of educators who are very new or completely inexperienced in the use of this instructive tool. Additionally, the sample represents the information seeking behaviors specific to middle school educators of Social Studies. Educators who have experience searching online may be accustomed to the layout or

organization of those sites they are familiar with, thus may not fairly evaluate the advantages and disadvantages as compared to other sites. Having the educators discuss "good" and "bad" video collections before they complete the think-aloud protocol part of the interview may increase the possibility of this interference.

Although I plan to compare the experiences of interviewees, an emphasis on speech communication and encouraging the teachers to discuss their experiences through narrative may inhibit my ability to collect comparable quantitative measure during the interview. For example, rather than spending time checking the entire list of video sites (there are 17 possibilities on the Interview Checklist) to see if an educator is familiar with them, I will just ask the educator which sites they use. It is very possible that an educator may have tried a site on the list but will not mention it. This method may result in a missed opportunity to remind the educator of a site they have used, but do not currently visit, and would have opinions about its usability.

Results

As discussed in the study's methodology, in order to facilitate comparison between interviewee behaviors, questions were taken from an Interview Guide and responses were noted against an Interview Checklist where possible. The transcript was later used, in addition to a more thorough analysis of described behaviors, to verify notes that were made on the Interview Checklist during the interview. The following results reflect data from the Interview Checklist. Additional information provided through interviewee narrative responses will be considered in the Discussion section.

How Video is Used

When asked how video was used for instruction, the most common responses were to reinforce a concept (8 out of 10), to introduce a concept (7 out of 10), to review a concept (7 out of 10), and to increase student interest (6 out of 10). However, teachers also mentioned using video to target visual learners (4 out of 10), because video can explain better than they can (2 out of 10), and because video explains better than text (2 out of 10). Educators mentioned using video to create interest before beginning a topic, to enrich a lesson, in testing, in the background while students worked quietly, and "for everything".

Figure 1. Video Use by Educator

Instructional use	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	total
Reinforce a concept	▪	▪	▪	▪	▪	▪		▪		▪	8
Introduce a concept			▪	▪	▪		▪	▪	▪	▪	7
Review a concept	▪	▪			▪	▪	▪	▪	▪		7
Increase student interest	▪			▪	▪	▪	▪	▪			6
Target visual learners		▪		▪	▪			▪			4
Video explains better than I can					▪			▪			2
Video explains better than text								▪		▪	2
Create interest before beginning				▪							1
Enrich a lesson				▪							1
In testing							▪				1
Background while students work					▪						1
I use it for everything								▪			1

How Educators Search for Video

All ten educators said that they seek resources both by going directly to their favorite sites as well as by initiating a Google search. However, several indicated they always try favorite sites (Discovery Education, The History Channel, etc.) first and resort to an Internet search when video cannot be found there. Several teachers mentioned selecting VHS or DVD videos from catalogs for purchase through their department or media center. One teacher relied heavily on the media center librarian's recommendations; while another claimed that the school's library had no good, current resources to use. Several teachers rely on the use of video they have personally collected over their career.

When asked about which site they go to first, all of the educators indicated that they favor Discovery Education's site. The next most popular site that is used is The History Channel (7 out of 10), followed by PBS (5 out of 10), Netflix (5 out of 10), and LearnNC (4 out of 10). Other sites mentioned were The Southern Poverty Law Center (2 out of 10), and National Geographic Video (2 out of 10). Sites mentioned by only one educator were Google Video, NPR, The Library of Congress, and Mr. Donn's page. These sites are appreciated because educators feel they have good content quality (8 out of 10), the resources are aligned with the curriculum (7 out of 10), and it is easy to find what they need (7 out of 10). Additionally, teachers mentioned associated content such as worksheets (5 out of 10), the good technical quality of the sites (4 out of 10), and appropriate video length (2 out of 10) as things that make a site useful.

Figure 2. Favorite Sites by Educator

Web site	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	total
Discovery Education	X	X	X	X	X	X	X	X	X	X	10
The History Channel		X	X	X		X	X	X		X	7
PBS		X		X		X		X	X		5
Netflix	X	X				X	X	X			5
LearnNC	X	X			X	X					4
Southern Poverty Law Center					X			X			2
National Geographic Video					X			X			2
Google Video					X						1
NPR							X				1
Library of Congress							X				1
Mr. Donn's Page										X	1

All interviewees search a site for resources by selecting a subject, and all but one also browse or narrow their search by grade level. The order in which they select these two filters varies among instructors (and could vary from one search to the next). Other search criteria sometimes used are age, curriculum, and keyword.

Criteria for Video Selection

In addition to the criteria that is used to initially narrow their selection, educators may consider various types of metadata when they are deciding whether or not to take the time to preview a video, but ultimately rely on their own viewing of the video in order to determine whether or not it is appropriate. Word-of-mouth suggestions from friends or personally known educators are the next most influential factors in their decision about whether or not a video will be used. A site-provided description of the video,

commentary on the site, or a review from an external source might make it more or less likely that the educator would consider previewing the resource but would not, in itself, result in a decision to use it or not. Several educators voiced a clear distinction between the value of input from another teacher who had reviewed or rated the resource on the site and input from a teacher with whom they worked. The latter was trusted and relied on due to a shared familiarity with the specific needs, interests, and abilities of their community of students.

Frustrations

Eight out of ten teachers indicated that they have permanent access to an LCD projector and screen in their classroom: the two who don't have access to these tools within their department. Of the eight with permanent access, seven prefer to download the files ahead of time for use with the projector. Most indicated that this was due to the possibility (however unlikely) that they could face connectivity issues while they were attempting to access video. The need to be able to show video without having to grapple with technical difficulties was emphasized by several teachers. Teachers preferred digital video to analog for a similar reason: any time video was interrupted or paused was time that they risked losing student interest and attention.

Figure 3. Access to Technology by Educator

Technology	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	total
Internet in Classroom	■	■	■	■	■	■	■	■	■	■	10
TV/VCR/DVD in Classroom	■	■	■	■	■	■	■	■	■	■	10
LCD Projector in Classroom	■	■		■	■		■	■	■	■	8

When asked about whether or not they felt they had access to all of the content they would like to use, most of the teachers (9 out of 10) agreed that it is difficult to find good video that is specific to North Carolina topics. As mentioned, North Carolina has established curriculum goals that emphasize the creation and development of the state for 8th graders. According to the NC Standard Course of Study description, "the organization is primarily chronological and reference is made to the key national phenomena that impacted North Carolina throughout these periods" (NCDPI, 2006b). Several teachers mentioned that they often struggle to relate national events to local history and expressed a desire for video that could help them achieve this. Additionally, several teachers (5 out of 10) said that while they could easily find video on more recent events in national history, it is more difficult to find materials illustrating earlier time periods, such as prior to the Revolutionary Era. Also mentioned as frustrating by half of the interviewees is the ability to find good quality content, although this point could easily overlap with frustrations related to finding video reflecting local history and older history. Several teachers (3 out of 10) said that it is difficult to find resources that will keep the interest of their students.

Discussion

To revisit the purpose of this study, my hope was to discover, through the personal experiences of educators, what is important to the search and selection of resources, and what sorts of things interfere with successful use of video. Our interviews also considered how the increase in online video and advances in classroom technology has affected the way educators are searching for and sharing these resources.

Important for Searching

When responding to how they locate video for use, educators frequently mentioned the amount of time searching required. Several interviewees mentioned the need for a site to be quick and easy to use. One teacher pointed out, "I don't have a lot of time so I need something that I can punch and go. And I don't want to have to search through thousands of things." Another more explicitly stated, "I don't know if I'm like other teachers but I am always looking for whatever is going to make it the easiest for me, and the ones where I can find what I need in the quickest amount of time. View it, find what I need, and if its got more than a couple of steps I'm like, 'forget it, I'll go somewhere else where everything is just going to be right there for me to do.'" All of the educators I spoke with felt that the interface of Discovery Education, which allows them to narrow by grade level and/or subject on the front page, was both easy to use and efficiently narrowed results. The site has the capability to narrow results by more than two selections, and several educators mentioned they occasionally take advantage of that. However, the number of results returned when filtering by just two selections was not perceived as overwhelming.

In regards to a different aspect of time, educators interviewed for this study use video that varies in duration. Several teachers mentioned the overall time constraints of the curriculum, one remarking, "The curriculum is so packed that you really have to consider the time." However, several teachers also indicated a preference for longer video with more in-depth information. In contrast, the Corporation for Public Broadcasting (2004) asserts that for reasons of time management, teachers prefer 10-15 minute clips to longer video segments. Mardis (2009) supports this conclusion, citing the flexibility of

these shorter segments, or "learning objects," explaining, "the concept of a 'learning object' is based on the idea that while public television provides viewers with valuable educational material from broadcast programs, these broadcasts are most valuable when they are segmented and can be integrated into the classroom in a multitude of ways" (p. 245). Several respondents in the present study did cite the desire to make specific selections (for example, "chapters") from longer pieces, and reported integrating short clips into PowerPoint presentations. However, many discussed using longer video when it was particularly appropriate to the curriculum. Four educators specifically pointed out a preference for being able to access a longer video with an outline or similar content breakdown, in order to have the option to show the video in its entirety or tailor selections to their lesson plan. However, the Corporation for Public Broadcasting study took all grade levels K-12 into account, which may help to explain the difference between that study and this one in preferences for video length.

Important for Selection

Some very interesting perspectives were revealed through discussions about how educators select appropriate video. Overwhelmingly, educators indicated they would ultimately need to watch a video to make this decision. There were two exceptions: one teacher said he would be willing to show a video, without watching it, if he was familiar with the series it came from. Another teacher said that she would probably consider showing a video if a fellow teacher who worked with the same students assured her that it was appropriate. Although, as mentioned in the Results section, the majority of teachers admitted that a site-provided description of the video, commentary on the site, or a

review from an external source would factor into their decision whether or not to preview a video as they browsed, it seemed that no amount of description on the site or testimony by other site users (educators or not) could alone convince them of a video's appropriateness. For example, one teacher said she's "more prone to watch it if it's got good recommendations from teachers," and "won't even touch it if it's got bad recommendations." However, good recommendations would never cause her to skip the preview. This was due to a sense that decisions about audience appropriateness required paying very close attention to the particular information needs of their students. One teacher remarked that video selection "really depends on the school you're in and the student body," while another pointed out that "all of the teachers here, we know the demographics of our kids, we know what they're gonna like, we know what's going to work." Several teachers indicated that while they use grade level to filter results, they don't necessarily agree with the grade level appropriateness as determined by the website. Their experiences reiterate the findings of Lawley, Soergel and Huang's (2006) study in which educators' relevance criteria was found to be typically complex and individual.

Thus, while the importance of sharing good resource ideas with other teachers at their school was emphasized, responses indicate that they participate in little, if any, sharing with the wider education community. More than half of the teachers mentioned that their Professional Learning Team (PLT) meetings served as a great opportunity to talk about good sites or specific video they are using. One teacher explained, "we share during our PLTs what works really well, and sometimes over email, too." But no one reported use of resource rating, review, or other tools to share their experiences with a

wider community via the websites. While educators were willing to consider reviews or ratings from unknown others when deciding whether or not to preview a video, they were unlikely to contribute such information themselves. One teacher responded that she is "not one to give a whole lot of feedback generally, like even on amazon.com" and another remarked, "that sort of review usually just happens in my head." Two educators did indicate they might review a resource if they felt very strongly about it (in either a positive or negative direction), and several indicated a desire to contribute if it would be helpful, but admitted that it was very unlikely given their time constraints. Feedback about the video resources available to these educators was overwhelmingly positive, yet an interest in sharing these opinions with other site users was lacking. Interviewees cited time as their reason for this, echoing the findings from Recker, et al.'s (2005) NSDL and IA user study. Additionally, it could be that an interest in contributing is affected by the fact that educators perceive additional information such as site-provided description of the video, commentary on the site, or other reviews as limited in their usefulness.

The Role of Technology

The difference that technological enhancements to classrooms have made in recent years was very obvious. One, acknowledging an appreciation for the capabilities he enjoys at the school where he currently teaches, pointed out that "if you head to another county, maybe the Internet connection is not nearly as strong, maybe you're not tapped into a T1." However, he explained that experiences from the recent past continue to affect his behavior today by saying, "Streaming six years ago was very difficult, just because of bandwidth. It was very difficult to be able to stream video and not have it

freeze up and reload and buffer, etc. so yeah, I think that conditioned people. At least, that conditioned me." This teacher was discussing the fact that he prefers downloading video prior to classroom use to streaming because "that one out of 180 days when we lose our Internet connection will be the day that I'm looking to show 30 minutes of video that I don't have on my hard drive. Data storage becomes an issue." This was a sentiment shared by several educators, but two suggested that their reasoning was not solely to avoid technical issues that could occur while streaming. They indicated some disrespect for sites that would not allow video download, because it suggested that financial gain was more important to them than providing needed educational resources. While the fact that a site would not offer the option to download would not in itself be a reason not to use video, it would be considered in their assessment of the sites value overall. One teacher said that, in the end, "I'll use it if I can only stream it, but if you give me the opportunity to download it, it's going on my hard drive."

However, even the teachers in the sample whose classrooms represent the highest level of technological capability (those with a dedicated projector and screen and no reported issues with streaming) prefer to download. For some, space for large files is a concern, but downloading allows them to integrate video with other materials in their lesson plan without having to visit the site and relocate files every time they want to re-use them. Several teachers mentioned they did not feel completely comfortable relying on their Internet connection for streaming, although uncertainty was more often attributed to earlier experiences with poor connections than it was to recent issues. Several teachers explained what consequences they face if technical issues arise while they are showing video in class, "if you stop for ten seconds all they're going to need to do is to turn to

their right and start a conversation with the kid next to them." The result would be time lost in order to regain control of the classroom.

Educators feel strongly that the technical quality of video is key to whether or not it is well-received by students. One teacher pointed out that "these kids are used to high definition and great sound quality, so if I use my speakers on my cart and I put [the video] on and it doesn't sound very good then I'm not going to show it to them because it won't keep their interest." Several teachers indicated feeling that, in order to be able to engage students at all with video, there were certain requirements relating to audiovisual quality that had to be met regardless of the video's content. Among these conditions were that the video be in color, be recent, and have good sound quality. Several teachers remarked that based on their experiences they would not try to show a video in black and white or one with more than a very minimal amount of "talking heads."

One educator was quick to explain how directly his information seeking had been affected by developments in the technology available to him:

> If you went back ten years, which is when I started, it was all video, it was all VHS, you know DVD hadn't really broken into the schools or if it had it hadn't broken into the schools I was working in…so you were extremely dependent as a teacher on your media specialist to be able to not only select good stuff but classify it by grade level. The one thing that's changed is we now can stream, obviously, at will. And so once you have that power in your hands you don't really need that intermediary of the media specialist any more, or quite as much.

Although other instructors mentioned that they sometimes communicate with the media center for materials and suggestions, data from this study would indicate that the role of the school librarian has shifted in response to the ease of independent resource discovery. Additionally, while in some schools the audiovisual technology that facilitates video use in the classroom is shared by multiple teachers or departments, all of the teachers I spoke

to had, at a minimum, a television and VHS/DVD player available at all times in the classroom. Only two teachers out of the ten interviewed did not have permanent classroom use of a projector and screen. The two lacking a permanent set-up were dependent on reserving the Social Studies department's projector and screen, which meant they were competing with as many as five other teachers for use of the tools.

Conclusions and Remaining Questions

The interviews with ten 8th grade Social Studies teachers in Wake County revealed that many of the searching preferences and issues indicated in earlier studies persist today. Educators see searching a website by subject and grade level as their preferred means, and a way to find the video they are looking for quickly and easily (Khoo, 2006; Lawley, Soergel, & Huang, 2006; Small, Sutton, Eisenberg, Miwa, & Urfels, 1998). Sites that outline the contents of a video and offer options in terms of accessing it in its entirety or in parts are preferred, as they allow teachers to tailor the resource and more easily integrate it into their lesson plans (Brown, 2006; Recker et al. 2005). While comments and reviews can be useful for educators evaluating the appropriateness of a resource (Lawley, Soergel, & Huang, 2006; Small, Sutton, Eisenberg, Miwa, & Urfels, 1998), educators in this study indicated that this input does not ultimately weigh in on the decision whether or not to use it.

Many aspects factor into how educators' determine if a video meets their information need, and the complexity and time-intensity of this process was reiterated by the interviewees in this study. Their search often begins on a website that they feel has established itself as a quality source. They filter search results to be age appropriate and

aligned with instructional objectives, and consider technical quality, content quality, and video duration (Everhart, 2009; Karchmer, 2001; Recker et al., 2006). However, some of the most critical decisions involve the educators' specialized knowledge about their particular student audience (Lawley, Soergel, & Huang, 2006).

It is incredible to think about how much more video is online today as compared to what was available ten years ago. After only five years on the Internet, You Tube boasts the addition of 24 hours of video every minute to its site (YouTube, 2010). Developments in video technology have made video creation and dissemination less expensive for everyone, including those who have an interest in creating educational content for public use. It seems that the increase in quantity has not had much of an effect on the relevance criteria that educators use in selection. However, advances in the classroom technology available to teachers have had a marked impact on their information seeking and use behaviors. The importance of access to high quality online resources and the means to share them with students is demonstrated by teachers' emphasis that video be of high technical quality in order to keep students engaged. As one teacher said, "if you could put into words [students'] greatest request about history it would be 'make it real for me.' And the well-produced video does that. It hooks them." Thus, the evolution in technical quality has affected educators' criteria in this area.

As previously mentioned, eight of the interviewees have permanent access to a projector and screen within their classroom while two have shared access to these tools. Not surprisingly, the latter two expressed more frustrations with technology including variable sound quality (depending on their access to speakers) and other issues resulting from dependence on shared technology and classrooms. I was surprised to discover that

eight out of the ten interviewees had access to the level of technology they did, and several mentioned that they were aware of the advantages this gave them. I suspect that in other areas of North Carolina, and certainly the country, teachers continue to grapple with issues that most teachers in the present study only reminisced about.

Based on my interviews, these educators look to Discovery Education for their video needs and are able to find most of what they are looking for there. However, they reacted favorably when I provided them with the list of free online video sites. Although teachers mentioned use of several other sites, it is difficult to know how much they actually rely on them. If Discovery Education offers one-stop shopping, how likely is it that teachers will continue to seek resources elsewhere?

Educators indicated two major areas in which they feel they have been unable to find resources appropriate to their needs: video illustrating pre-19th century history and video specific to the North Carolina experience. An intended outcome of this study was to make recommendations for the system design of local video oral history collections. The fact that the teachers involved in this study indicated a specific interest in finding more content related to North Carolina could be an incentive for these collections to target this population. The following recommendations are made with an attempt to consider both educator information seeking needs as well as practical realities related to time and cost on the part of the video collections (Brown and Bowers, 2006; Patuelli, 2007).

Obviously, the ideal way to provide access to the contents of an oral history is through provision of a transcript. However, manual transcription is costly, as is automatic speech recognition, which does not yet offer the same degree of accuracy. Thus, if

collections are unable to offer a transcript, at a minimum they should provide an oral history video in its entirety and segmented into shorter pieces. The segments could be signaled by changes in topic or speaker, or both. While marking changes in topic would require a bit more effort than changes in speaker, it could allow for broad searching within the site. I also think it is important that these collections make the provision of high quality video a priority, available for both streaming and download.

Although overall the responses from interviewees indicate they would be unlikely to add reviews or other content to a site, several indicated that they would be more likely to do so if the site made the process very quick and easy to do. Given the expressed interest in video relating to North Carolina, I think it would be worthwhile for a local video collection to test this possibility with users. A drop-down menu with selections relating to subject areas and curriculum standards would be very easy to use and site designers could then make videos searchable by these features. While I think it is useful to explore this possibility, certainly whether or not users would be willing to take the time to provide this content is a question that remains.

Mardis (2009) makes a couple of very important points about what could be at stake if good quality free collections of educational video are unable to compete with large corporations like Discovery Education. One is that market domination will likely affect the cost to schools. Secondly, and in my mind more importantly, reliance on one site could lead to cultural or political bias, with the result that students "might not be exposed to the full range of opinion and perspectives needed for them to comprehend the complexities of certain curricular issues" (p. 246).

Advances in video technology have made video production easier and less expensive. Educators have indicated that they are eager users of video in the classroom, and that there are gaps in the content available to satisfy their instructional needs. Creators of these resources have an opportunity to make them accessible and useful to educators. Although this study investigated a small sample of educators, the findings offer an indication of some basic considerations that, if addressed by system designers, could result in increased usability.

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Appendix A: Interview Guide

Part 1: Questions and Critical Incident Technique

1. What do you do to find video to use for class?

2. What sites have you visited?

3. What site(s) is/are best? (Why? What do you like about them? How do you use them?)

4. What site(s) is/are worst? (Why? What don't you like about them/makes them bad?)

5. What is the best way to filter results when you are looking for video? (Prompt with subject, alignment with curriculum, video length, grade level, other)

6. How do you like to see your results? (Prompt with still image, textual summary, keywords, repeat of filter choices, video duration, preview available, other)

7. What is useful for really deciding whether or not a video will be useful and appropriate for instruction? (Prompt with peer commentary, keywords, reviews from site or other sources, other)

Part 2: Search Task and Think-Aloud Protocol

Sites searched:

Annenberg Media (www.learner.org/resources)

You Tube (www.youtube.com)

Internet Archive's Moving Image Archive (www.archive.org)

Public Broadcasting Service (http://video.pbs.org/)

Learn NC (www.learnnc.org)

Appendix B: Interview Response Checklist (to be used for note taking)

1. Tell me how you use educational video.	Introduce concept		
	Reinforce concept		
	Target visual learners		
	Increase student interest		
	Video explains better than text		
	Video explains better than I do		
	Review concept		

2. Tell me how you search for educational video online.	Keywords in a search engine		
	Go to trusted video sites		

3. Can you tell me about one time you found a video that was really useful to you?

4. What site(s) do you think are best?	Annenberg Media		
	DIGG		
	Edutopia		
	Google Video		
	The History Channel		
	Internet Archive		
	LearnNC		
	National Geographic Video		
	Nature		
	Nova Teachers		
	National Science Digital Library		
	NSF Windows to the Universe		

	PBS		
	Teacher Tube		
	Thirteen/WNET (PBS)		
	WatchKnow		
	You Tube		

4a. What do you like about them?	Easy to find what I need		
	Good technical quality		
	No technology problems		
	Good content quality		
	Video length appropriate		
	Alignment with curriculum		
	Reviews		
	Other features		

4b. How are they organized/what features do they have?	Search by subject		
	Search by grade level		
	Search by age		
	Search by curriculum		
	Search by keyword		
	Commentary/review		
	Ability to customize		
	Lesson plans		

5. Is there anything about searching for educational video that is hard or frustrating?	Hard to find free resources		
	Hard to find good tech. quality		
	Hard to find good content quality		
	Difficulty downloading/playing		

6. What are the most helpful ways to filter results?	Subject		
	Alignment with curriculum		
	Video duration		

	Age level		
	Grade level		
	Learning objective		
	Video recency		

7. What do you like to see when you select a video from filter results?	Still image of video		
	Textual summary		
	Keywords		
	Repeat of selected filters		
	Video duration		
	Short preview		

8. What helps you to decide whether or not a video will be useful and appropriate for instruction?	Watching it		
	Keywords		
	Reviews provided by the site		
	Reviews provided by external source		
	Peer commentary		
	Using it		

Appendix C: Cover Letter
[Letterhead here]
Month, day, 2010

Dear Educator:

I write to request your input for a study about how teachers find video to use for classroom instruction. I plan to use my findings to recommend ways that free online video collections can be better designed to serve the needs of educators.

If you are willing to provide input, I would come to your school at a time that is convenient to you and conduct a casual interview that would take about 20 minutes. I will ask questions about how you find video and have you look at a few sites online and tell me what is good or bad about their layout.

Thank you for your consideration. Please do not hesitate to email me at danica.cullinan@gmail.com or call me at (919) 816-5291 if you have questions.

Sincerely,

Danica Cullinan

Graduate Student

School of Information and Library Science

University of North Carolina at Chapel Hill

Appendix D: IRB Consent Form

University of North Carolina-Chapel Hill
Information about a Research Study

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IRB Study #   **Consent Form Version Date:** May 12, 2010

Title of Study: How Educators Find Video for Classroom Instruction

Principal Investigator: Danica Cullinan
UNC-Chapel Hill Department: School of Information and Library Science
Faculty Advisor: Deborah Barreau
Faculty Advisor Email: barreau@email.unc.edu

Study Contact telephone number: 919-816-5291
Study Contact email: danica.cullinan@gmail.com

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What are some general things you should know about research studies?
You are being asked to take part in a research study. To join the study is voluntary. You may refuse to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study. You will be given a copy of this consent form. You should ask the researchers named above, or staff members who may assist them, any questions you have about this study at any time.

What is the purpose of this study?
The purpose of this research study is to learn about how educators prefer to view and search online video resources for use in classroom instruction. The results will be used to make recommendations for the presentation and organization of video interview collections.

You are being asked to be in the study because you are an educator with experience searching for video online.

Are there any reasons you should not be in this study?
You should not be in this study if you have never searched online for video to use in classroom instruction.

How many people will take part in this study?

If you decide to be in this study, you will be one of approximately 10 people in this research study.

How long will your part in this study last?
If you agree to take part in this study, you will participate in an interview that will take less than 20 minutes.

What will happen if you take part in the study?
If you agree to take part in this study, the researcher will ask you questions about how you search for video online and ask you for your opinion about the organization of some video resource websites.

What are the possible benefits from being in this study?
Research is designed to benefit society by gaining new knowledge. You may also expect to benefit by participating in this study by receiving a guide to useful online video resources.

What are the possible risks or discomforts involved from being in this study?
There are no known risks involved with your participation in this study.

How will your privacy be protected?
Participants will not be identified in any report or publication about this study. The interview will be audio recorded and used for analysis. No identifying information will be used in the analysis or retained after the study is completed. You may request that an audio recording be turned off at any point during the interview. As a participant in this study, you do not need to reveal your name, or you may use a fictitious name.

What if you want to stop before your part in the study is complete?
You can withdraw from this study at any time, without penalty. The investigator also has the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

Will you receive anything for being in this study?
You will receive a guide to free online video resources for taking part in this study.

Will it cost you anything to be in this study?
There will be no costs for being in the study

What if you have questions about this study?
You have the right to ask, and have answered, any questions you may have about this research. If you have questions, complaints, concerns, or if a research-related injury occurs, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research participant?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject, or if you would like to obtain information or offer input, you may contact the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu. *Thank you for helping me with this study.*

Appendix E: Video Resource List

Annenberg Media (www.learner.org/resources): Learner.org has searchable video titles, including professional development targeted to specific subjects. Users can browse by discipline (arts, education, education reform, foreign language, literature and language arts, mathematics, science, and social studies and history), by grade (K-2, 3-5, 6-8, 9-12, and college & adult). Within a program area, teachers can view the course outline indicating objectives associated with video content as well as reviews (all positive) by librarians, teachers, and publications.

AwesomeStories (http://www.awesomestories.com/): Launched in 1999, AwesomeStories was designed to help educators and individuals find primary source materials located at national archives, libraries, universities, museums, historical societies and government-created web sites. AwesomeStories is designed to support state and national standards: each story on the site links to online primary source materials which are positioned in context to enhance reading comprehension, understanding and enjoyment.

DIGG (http://digg.com/videos): DIGG is a public sharing site for videos organized by Technology, World & Business, Science, Gaming, Lifestyle, Entertainment, Sports, and Offbeat. There are slightly more detailed subdivisions within each of these higher-level topic areas. Associated videos usually have a title and short description, with community-submitted comments and reviews, similar to YouTube.

EASE History (http://www.easehistory.org/index2.html): An online environment from Michigan State University that supports the learning and teaching of US History. Hundreds of historical videos and photographs are currently available in EASE History. Material is organized in three collections; historical events, campaign ads, and "core values" such as democratic values, US constitutional principles and symbols of freedom. These collections are further subdivided by theme. The site also includes a glossary of terms and lesson plans (within the learning guide).

Edutube (http://www.edutube.org): Videos are searchable by subject category, educational level, video type and duration, and are further categorized according to language, relevant tags, and copyright. The videos are given an EduTube index by using three measures of quality; number of views per day, the video's rating from its hosting site, and a subjective evaluation of the educational value of the video according to EduTube moderators. The majority of videos are mined from YouTube.

The History Channel (www.historychannel.com): Offers a sizeable number of searchable streaming video segments. Organized by popular topics, popular videos, featured History Channel shows with video, and five "more history" topic areas (Pawn Stars, Ancient Aliens, WWII, America: The Story of Us, and This Day in History). Video metadata includes title with short description and video length. (video segments preceded by short advertisement)

Internet Archive's Moving Image Archive (www.archive.org): Provides open-source video content ranging from media studies to advanced mathematics. Organized by sub-collections; animation & cartoons, arts & music, computers & technology, cultural and academic films, ephemeral films, home movies, movies, news & public affairs, open source movies, Prelinger archives, spirituality & religion, sports videos, videogame videos, vlogs, and youth media.

LearnNC (www.learnnc.org): LEARN NC offers a wide array of resources for K–12 classroom instruction and teacher professional development, all tied to the North Carolina Standard Course of Study. All resources, except for online courses, are free and open to the public. Anyone may sign up to receive regular email updates about our resources and services and participate in online discussions.

Multimedia Seeds (http://eduscapes.com/seeds/collections/clips.html): Offers a great list of websites with video clips. Some of them are reviewed in this list.

NASA Video Gallery (www.nasa.gov/multimedia/videogallery): Video accompanied by title and short description. Not searchable.

National Geographic Video (http://video.nationalgeographic.com/video): High level organization of video by; Animals Video, Environment Video, Kids Video, Movies, Music Video, News Video, Science and Space Video, Specials Video, Travel and Cultures Video. Video still accompanied by a short description and the video length, as well as related links. (video segments preceded by short advertisement)

NATURE International Weekly Journal of Science (http://www.nature.com/nature/multimedia/): For selected articles and letters *Nature* presents streaming videos that feature interviews with scientists behind the research and analysis from *Nature* editors. Flash browser plug in is required to watch videos. Users can also upload and share videos through Nature's You Tube channel (http://www.youtube.com/NatureVideoChannel?gl=GB&hl=en-GB).

NOVA Teachers (http://www.pbs.org/wgbh/nova/teachers/): Features video segments culled from NOVA broadcasts. Teacher resources organized by: class-based interactive, media-rich lesson ideas, teacher guides, and "teacher's domain". Teacher's Domain browseable by K-12 subject, professional development resources, and "special collections" which includes a public media series, state and local collections, and curriculum topics and themes. Within these categories, digital resources are listed by title with a short description of the video contents, grade level, and resource format.

The National Science Digital Library (http://nsdl.org/): Search by grade level (preK-2, 3-5, 6-8, 9-12) or resource format (audio, data, image, interactive resource, text, video), special search by subject (education, engineering, health/medicine, mathematics, science, social studies, and technology), and by learning pathway.

The National Science Foundation Windows to the Universe (http://www.windows2universe.org/olpa/videos/videos_menu.html): Offers videos organized by title with short description and video length. Site has many other resources in various formats.

NobelPrize.org (http://nobelprize.org/index.html): Video available for some Noble Prize lectures as well as documentaries about prizewinners themselves.

Public Broadcasting Service (http://video.pbs.org/): Organized by Programs (numerous), Topics (Arts & Literature, Cinema, Culture, Health & Wellness, History, Home & How-To, Nature & Environment, News & Public Affairs, Performing Arts, Region, Science, and Technology), and Collections (numerous). User can further filter results in the topic areas into sub-topics. Video frame accompanied by short description and video length. User can sort results by title, length, and premier date. Two surrogate views offered, one also associates TV rating with video.

Teacher's TV (http://www.teachers.tv/videos): Funded by the UK's Department of Education, Teacher's TV has a wide variety of content that supports educators' professional development. The site hosts videos for use in the classroom organized by subject, grade level, and popularity. Videos are aligned with UK educational standards.

Thirteen/WNET (http://www.thirteen.org/edonline/edvideo/index.html): A PBS station, Thirteen/WNET New York developed this free service that includes standards-based lesson plans and classroom activities as well as a multimedia primer, online mentors, and reviews of curriculum-based Web sites.

WatchKnow (http://www.watchknow.org/): "Videos for kids to learn from. Organized." WatchKnow has indexed over 15,000 online educational videos for children, putting them into a directory of over 3,000 categories. The videos are available without any registration or fees to teachers in the classroom and to students at home 24/7. Users can use the directory of videos or search by subject and age level. Video titles, descriptions, age level information, and ratings are all edited for usefulness. The site invites broad participation in a new kind of wiki system, guided by teachers.

http://www.accreditedonlinecolleges.com/blog/2010/100-video-sites-every-educator-should-bookmark/

Additional Sites Mentioned by Educators During Interviews:

Southern Poverty Law Center (http://www.tolerance.org/)

Liberty Kids (http://www.libertyskids.com/)

North Carolina Museum of History (http://ncmuseumofhistory.org/)

Mr. Donn's Page (http://www.mrdonn.org/)