ABSTRACT

Title of Document:	INFORMATION SEEKING IN CONTEXT: TEACHERS' CONTENT SELECTION DURING LESSON PLANNING USING THE SHOAH FOUNDATION'S VISUAL HISTORY ARCHIVE OF HOLOCAUST SURVIVOR TESTIMONIES
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This study explored the information seeking task of content selection. An integrative conceptual framework used existing models to examine the context and process of information seeking, evaluation, and selection. The conceptual framework incorporated three main elements of the information seeking process:

- The information need context,

- The information search process,

- Relevance criteria.

Among teachers' many duties are the creation, implementation, and revision of lesson plans. A subtask of lesson planning is content selection, which occurs when teachers seek outside content, such as readings or audio recordings, to incorporate into lesson plans. Content selection is seen here as a work-task-embedded information seeking process.

A qualitative study was implemented within the setting of a week-long professional development workshop, during which eight teachers used a custom software product that combined a lesson-planning module with an information retrieval (IR) system. The IR system provided access to a subset of the Shoah Foundation's Visual History Archive. Data types included interviews, fly-on-the-wall transcripts, transaction logs, relevance judgments, and lesson plans. Analysis combined inductive and deductive techniques, including start codes, constant comparison, emergent themes, and matrix analysis.

Findings depict associations among each component of the framework.

1. The information need context consists of five layers (Environment, Role, Person, Task, Information Source Characteristics), each of which influences information search and relevance.

2. The ISP includes two cognitive-behavioral facets: Conceptualizing and Actualizing.

3. Relevance criteria are the situationally-driven embodiment of contextual elements that apply to information seeking.

These findings have theoretical and practical implications for information studies and education. For information studies, this study contributes to understanding of the ISP as contextual, cognitive, and interactive. Information need, while unobservable in its native form, can be depicted in enough detail to supply meaningful requirements for the design of information systems and processes. Content selection is a form of exploratory search, and this study's implications suggest that the "traditional" reference interview should be used as an interaction model during exploratory search. For education, this study extends

the discourse about consequences of standards-based education for teacher practice and

contributes to models of teacher planning as an iterative, cognitive process.

Information seeking in context:

Teachers' content selection during lesson planning

using the Shoah Foundation Visual History Archive of Holocaust survivor testimonies

By

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Dedication:

You should see this, Dad.
It is very much for you, with my love and gratitude.

Acknowledgments

To my Ernie and Mary Zula: This little project of mine diverted my attention from being the wife and mother I want to be. There has been some agony in tearing myself away from you, and resuming our life as a family together will be my greatest reward. From the bottom of my heart, thank you, Ernie, for all you have given, done, and endured. I love you.

Table of contents

References   369

List of Tables

List of Figures

There is a new profession of trail blazers,
those who find delight in the task of establishing useful trails
through the enormous mass of the common record.

— Vannevar Bush, 1945

Chapter 1: Introduction

> Truly significant attainments become lost in the mass of the inconsequential. The difficulty seems to be, not so much that we publish unduly in view of the extent and variety of present day interests, but rather that publication has been extended far beyond our present ability to make real use of the record.
>
> — *Vannevar Bush, 1945*

1.1 Problem Statement

1.1.1 The Information Problem

In this discussion, *the information problem* refers to the challenges involved in finding intellectual and physical access to recorded information. Many concepts and terms capture aspects of the information problem, such as information overload, organization underload, overchoice, low signal-to-noise ratio, information pollution, censorship, illiteracy, ambiguity, polysemy, synonymy, homonymy. Although the information problem is frequently characterized as a sign of the times, the need for and practice of techniques for storing, organizing, and accessing information extend at least as far back as the ancient libraries of Rome, Egypt, and China.

1.1.2 Challenges of Teaching

The United States Department of Education projects that 3.2 million men and women worked as public school teachers in 2009 (U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics, 2009). The following

excerpts from the Bureau of Labor Statistics Occupational Outlook Handbook (2009)

describe the nature of teachers' work:

- Teachers act as facilitators or coaches, using classroom presentations or individual instruction to help students learn and apply concepts in subjects such as science, mathematics, and English. They plan, evaluate, and assign lessons; prepare, administer, and grade tests; listen to oral presentations; and maintain classroom discipline. Teachers observe and evaluate a student's performance and potential. They are increasingly asked to use new assessment methods.
- Teachers also grade papers, prepare report cards, and meet with parents and school staff to discuss a student's academic progress or personal problems.
- Teachers often work with students from varied ethnic, racial, and religious backgrounds. With growing minority populations in most parts of the country, it is important for teachers to work effectively with a diverse student population.
- Accountability standards also may increase stress levels, with teachers expected to produce students who are able to exhibit a satisfactory performance on standardized tests in core subjects. Many teachers, particularly in public schools, also are frustrated by the lack of control they have over what they are required to teach.
- Teachers are sometimes isolated from their colleagues because they work alone in a classroom of students. (http://www.bls.gov/oco/ocos318.htm)

1.1.3 Teachers' Experience of the Information Problem

Teachers work in a fast-paced, unpredictable, and information-rich environment that

almost constantly presents physical, emotional, and cognitive challenges. Among

their many duties, teachers are responsible for the creation, implementation, and

revision of lesson plans. A subtask of lesson planning is content selection, which

occurs when teachers seek outside content, such as readings, audio recordings, Web

sites, or videos to incorporate into their lesson plans. Locating materials is a key

activity in lesson planning (Clark & Yinger, 1979). From the perspective of this study,

content selection is a kind of information seeking that is performed in a work-task

situation (Bystrom & Hansen, 2002). Content selection might be an especially

difficult type of information seeking because of the compound challenges that come from the information problem and the complexities of the teaching occupation. In studies of teachers' lesson planning activities, content selection has found to be especially difficult (Chung, 2000; Venn & McCollum, 2002; Recker, Dorward, & Nelson, 2004; Perrault, 2005).

1.2 Purpose of the Study

The purpose of this study was to understand how teachers experienced the information access task known as content selection during use of the Shoah Foundation's Visual History Archive of Holocaust survivor testimony. The mechanism for constructing this understanding was an integrative conceptual framework that used existing models to examine the context and process of information seeking, evaluation, and selection. The goals of the study were to:

- Systematically depict teachers' content selection as a context-embedded instance of information seeking, and thereby
  - Generate recommendations for the design of systems and processes that accommodate teachers' goals and constraints during content selection, and thereby
    - Mitigate the effects of the information problem during content selection;
- Test the efficacy of this conceptual framework for guiding the collection, analysis, and understanding of data about the information seeking process and its surrounding context.

1.3 Summary of the Study

The impetus of this study was the development of a conceptual framework that incorporated three main elements of the information seeking process:

- The information need context,

- The information search process, and

- Relevance criteria.

The framework's purpose was to explore:

- T.D. Wilson's 1981 model, "Factors that influence needs and information seeking behavior," as a template for depicting the context within which information seeking occurs;

- Relationships between this portrait of context and the information search process;

- Relationships between this portrait of context and the formation and use of relevance criteria;

- Relationships between information search and the formation and use of relevance criteria.

A series of research questions was generated to guide exploration of the framework's elements and relationships. The framework and research questions are described in Chapter 2.

In August 2006, eight public high-school teachers (four English, four social studies) attended a week-long professional development workshop at the University of Maryland. During the workshop, the teachers worked both independently and

collaboratively to select content for their own lesson plans, using a custom software system that combined a lesson planning module with an information retrieval module. The retrieval module provided access to a subset of the Shoah Foundation's Visual History Archive of Holocaust survivor testimony.

Data were collected before and throughout the workshop, including interviews, fly-on-the-wall recordings, system transaction logs, lesson plans, free writes, and observer notes. Data collection protocols were tailored to the demands of the research questions, and qualitative analysis was performed, especially the techniques of constant comparison (Glaser & Strauss, 1967) and matrix analysis (Miles & Huberman, 1994).

The findings of this study are presented in the form of rich descriptions from multiple sources of data of the characteristics and relationships of the Information Need Context, the Information Search Process, and Relevance Criteria.

1.4 Contributions

This study's contributions include the following:

1. Systematic and detailed description of the five layers of information need context and their implications for content selection. The five layers of information need context are:

    - Environment,

    - Role,

    - Person,

    - Task, and

- Information source.

2. Rich descriptions of teachers' thoughts, behaviors, functions, and processes during the information search process of content selection. A duo of facets was introduced to organize and understand information search from a new perspective. The facets are Conceptualizing and Actualizing.

3. List of relevance criteria, with detailed descriptions and examples, that teachers used or wished to use during the process of searching for, judging, and selecting content for lesson plans.

4. Preliminary descriptions of interactions between layers of context and elements of the information seeking process. For example:

    - The topics of English teachers' system queries were broader or more abstract than the topics of social studies teachers' queries.

    - Lesson planning influenced information search when the topics and/or objectives dictated what kinds of content should be used to enhance students' learning experience.

    - Information search influenced lesson planning when teachers came across content (usually unexpectedly) that gave them new ideas or inspiration for instructional topics or activities.

1.5 Structure of the dissertation

The rest of this dissertation is structured as follows:

- Chapter 2 reviews literature relevant to this study and introduces the conceptual framework and research questions.

- Chapter 3 describes the study's methodology and limitations.

- Chapters 4 – 6 present the findings of the three research questions that were explored during this study.

- Chapter 7 discusses the findings and presents contributions, implications, and areas for future research.

Chapter 2: Literature Review, Conceptual Framework, and Research Questions

Presumably man's spirit should be elevated if he can better
review his shady past and analyze more completely and
objectively his present problems.
– Vannevar Bush, 1945

This chapter describes models, methods, and findings from three core sectors of information studies literature:

- Information needs and contexts,

- Information seeking process, and

- Relevance.

Before the literature review branches into topical sub-areas, the remainder of this section will introduce the user-oriented perspective from which this study proceeds, which is best understood in juxtaposition to the system-oriented perspective.

Development strategies for information retrieval systems grew from what is now known as the system-oriented perspective. System-oriented information retrieval processes use computational text-matching with statistical and probabilistic mechanisms to match queries with information entities (Sparck Jones, 1988; Salton, 1996). From this perspective, a query is taken at face value as an expression of the user's information need (Baeza-Yates & Ribeiro-Neto, 1999). Information retrieval

systems are evaluated by virtue of their ability, given a query, to select relevant and avoid irrelevant information entities in the retrieval set. Relevance is seen as a relationship between a query and an information entity. The vast majority of system-oriented evaluation studies are performed in controlled, experimental settings, where relevance decisions are made by assessors rather than by real users with genuine information needs (for example, Voorhees & Harman, 2005).

The user-oriented view arose as researchers began to criticize the absence of a person in system-oriented models of information retrieval. In an early and seminal paper, Cuadra and Katter (1967) illuminated potential pitfalls in assuming relevance to be a stable indicator of quality. In their study, subjects judged the relevance of a set of documents both before and after being assigned a specific point of view from which their judgments should be made (i.e., a document use scenario). This simple shift in cognitive orientation caused significant changes in the relevance judgments that had been made from the subjects' native perspectives. These findings suggest that relevance is subjective. Throughout the decades succeeding Cuadra and Katter's study, we have seen a proliferation of literature – both experimental and theoretical – that espouses the user-oriented view (including P. Wilson, 1973; Kemp, 1974; T. Wilson, 1981; Soergel, 1985; Schamber, Eisenberg, & Nilan, 1990; Kuhlthau, 1991; Marchionini, 1995). This view is characterized by its emphasis on the user as the central player in information seeking and retrieval situations, with acknowledgment of the complexity that comes with the territory. The category of literature that could be considered user-oriented is so vast that one could find little else in common among its texts, except perhaps for the interactive (or iterative or communicative) nature of

the information seeking process. It should not be assumed that the rise of the user orientation meant the demise of the system orientation. Each perspective examines and evaluates different levels and aspects of information seeking and retrieval (Saracevic, 1995), and each can take ownership of advancements in basic and applied information science research (Hjorland, 1996; Salton, 1996). Because the impetus of this study is primarily oriented toward understanding the characteristics and influences of the information seeker's personal, situational, and environmental context, the remainder of the discussion will assume a user-oriented perspective of information seeking as a phenomenon that is *cognitive*, *interactive*, and *situational*.

2.1 Information Need Context

The person who seeks information does so because of an experienced *need* for information. The nature of that need has very much to do with factors of this person's experience that existed before she came to our attention as an information seeker. The first subsection of the *Information Need Context* discussion will focus on models and research that deal with the influence of contextual and situational factors on the need, seeking, and use of information.

2.1.1 Embedded Users

A large portion of information studies research has been dedicated to understanding users. The more we can learn about when, why, where, and how people seek and use information, the better we can represent and structure information so that it is salient, accessible, and comprehensible. Some have looked for the answers to

those questions in the characteristics of users and the worlds in which they live.

According to several models from the user-oriented tradition, often called cognitive

or contextual models, user needs and information behavior cannot be meaningfully

depicted independent of their contexts (e.g., T. Wilson, 1981; Belkin, Oddy, &

Brooks, 1982; Savolainen, 1995; Dervin, 1998; Ingwersen, 2002; Fidel & Pejtersen,

2004). T.D. Wilson's two models from 1981 – one of the information user and one of

the information need – emphasize the embeddedness of the user in a larger context.

Wilson presented these models of the user-in-context in response to what he called

the "seemingly intractable problems" of studying user needs. This intractability was

at least partially attributable to the failure of previous studies to explore the context

from which users' information needs arise. Simplified versions of these two models

(i.e., arrows removed) are depicted in Figure 2.1 and Figure 2.2. In Figure 2.1, the

User is surrounded by a Reference Group (people can have many reference groups,

such as coworkers, friends, etc.), which is surrounded by the user's Life World,

defined as "the totality of experiences centred upon the individual as an information

user" (T. Wilson, 1981, p. 661). The user-entities have some contact with an

Information System, which is depicted alone in the diagram with the understanding

that it represents one of many such systems in the Universe of Knowledge. Each

Information System includes a fraction of the content of the realm of available

Information Resources.
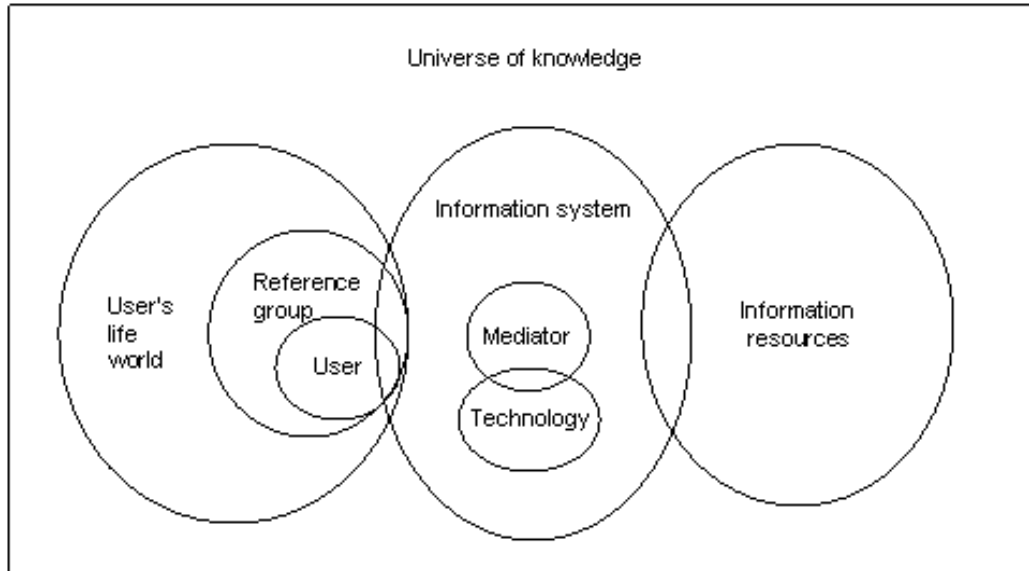
Figure 2.1. The information user and the universe of knowledge, adapted from Wilson (1981).

Figure 2.2 shows the Person from a different perspective, as a being with needs, who has a Role (out of which information needs may arise), which operates within an Environment. There are several different types of Environment within which the person-in-role can operate, and any combination of these environments can overlap at any given time. Different kinds of Barriers can impede Information Seeking Behavior. In their model of professionals' information seeking, Leckie, Pettigrew, & Sylvain (1986) and Taylor (1991), also emphasize the importance of the worker's role and intervening variables in shaping the information need and information seeking behavior.
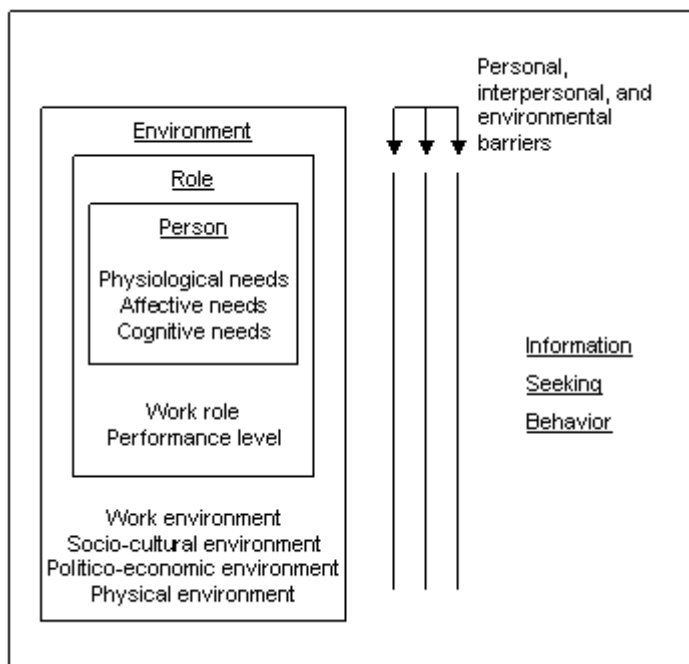
Figure 2.2. Information need and seeking, adapted from Wilson (1981).

Ingwersen's cognitive model of information seeking and retrieval (Ingwersen, 1992, 2002) also depicts different layers of context – organizational, social, and cultural – in addition to emphasizing the user's cognitive, emotional, and historical aspects. Ingwersen's theory also contributes the concept of *polyrepresentation*, whereby every actor who comes into contact with an information object comes from a distinct context, which has some influence on that actor's interpretation of and interaction with the object. These actors include authors, editors, publishers, and indexers, as well as the people who create the data structures, algorithms, and interfaces of the information systems used to store, represent, and retrieve information objects (Larsen & Ingwersen, 2005).

Taylor's (1991) model of Information Use Environments (IUEs) adopts a sociological perspective for understanding groups of information users. In Taylor's

research and most of its derivatives, the user groups are defined by a common profession of practice (e.g., Taylor studied engineers, doctors, and lawyers). Taylor's conception of *environment* is another form of context, which consists of four categories of elements:

1. People – Certain characteristics of the people who belong to a (professional) set will be relevant to defining the IUE, such as demographic variables (but only some will apply), media use (types of media used and manner of use), social networks, and attitudes;

2. Problems – Each IUE has a particular class of problems that arise from the setting. He uses teachers as an example: their problems include subject matter, classroom management, and administration. The information seeking and use of teachers come forth to solve or manage these particular problems;

3. Settings – Taylor specifies four dimensions that define the setting of an IUE: organization, domain of interest, access to information, and history and experience;

4. Solutions – People's perceptions of the characteristics of their problems spawn the expectations they will have about solutions. The requirements that emerge from problem understanding will determine the type of information use that will characterize the solution.

Information behavior, according to Taylor, is "the sum of activities through which information becomes useful" (1991, p. 221). Information behavior is produced by these four elements of IUEs. In the frame of the current discussion, Taylor's elements of information behavior are analogous to layers of information need context.

Cognitive Work Analysis (CWA) (Vicente, 1999; Fidel & Pejtersen, 2004) brings the user-oriented, cognitive/contextual perspective to the hands-on level of analyzing and designing complex information systems. CWA's analytic structure is designed to simultaneously focus on the worker's thoughts and perceptions, the task's requirements and procedures, and characteristics of the surrounding physical, social, and organizational environments. The primary operational constructs are the worker's *goals* and the contextual *constraints* (personal, social, organizational, environmental) that shape interactions with information. One of CWA's strengths is that its framework allows for rigorous and systematic representation of multidimensional and complex phenomena, such as information seeking. Figure 2.3 shows how CWA structures levels of analysis from the ecological to the cognitive. Data from each of these levels can be represented and analyzed with tools such as flow maps, abstraction-decomposition models, product-process models, and other meaningful, structured information displays.
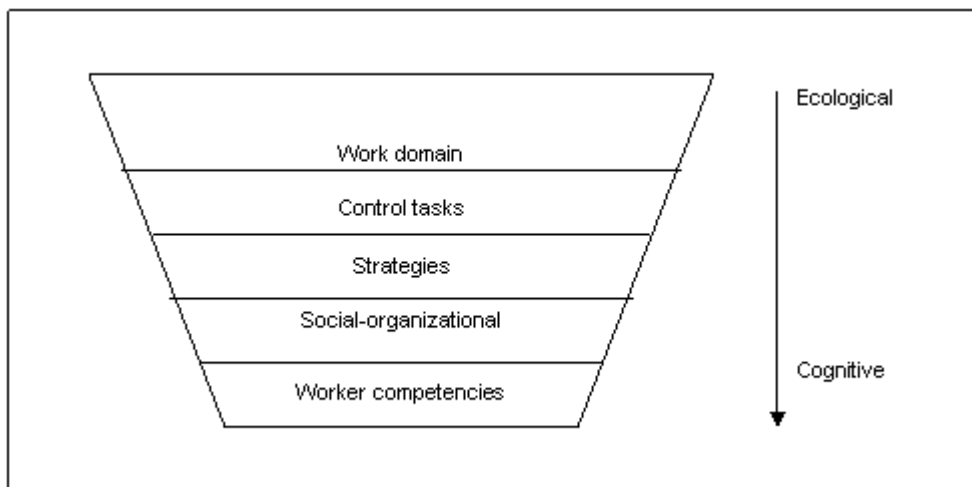
Figure 2.3. Levels of consideration in Cognitive Work Analysis, from Vicente (1999).

2.1.**2 Information Needs**

Information need has been a topic of abundant discussion for more than half a century of research in LIS and related fields, including communication, psychology, and sociology (Case, 2002). In the tradition of cognitive perspectives of information behavior, Harter (1992) defines information need as,

> The current cognitive state of an information seeker and, as such, constantly changing … [It] includes not only a topical statement of the subject of the inquiry and why it is of interest to the individual, but also all other assumptions that comprise the current context (p. 606).

Belkin (1980) and Dervin (1983) conceptualize information need as an absence rather than as a presence. Belkin describes the need as an anomalous state of knowledge, which by the very nature of the anomaly, is especially troublesome for an information seeker to express. The best match principle, which underlies traditional text-matching retrieval approaches, only works to the extent that the user can generate a description of something that he, by definition, does not know about. Furthermore, he must generate this description using the same terminology as the targeted information objects. This anomaly can continue throughout a series of interactions with a retrieval system and, unless the user becomes more informed during these interactions, he will be no better equipped to judge the relevance of information objects in the retrieval set than he was to formulate a query (Bean & Green, 2001).

In Dervin's (1983) sense-making model of information seeking, the information need is a gap that the user perceives when his sense (his understanding) of the world in the here-and-now is insufficient to enable movement through the situation. The gap "can be filled by something that the needing person calls

information" (p. 156), which will require the user's active integration of the content into his ever-changing sense. Hence, the key to understanding a user's need is to learn about the situation from which the need arose and the use the person plans to make of the sought information (Dervin & Dewdney, 1986).

One of the difficulties of studying information needs is that they are internal, subjective, and unobservable (Belkin & Vickery, 1985 ; Case, 2002). Methods for documenting needs include interviews (Wang & Soergel, 1998), question analysis (Saracevic, Kantor, Chamis, & Trivison, 1988), and users' problem statements (Belkin, Oddy, & Brooks, 1982). Dervin's sense-making methodology promotes the use of open-ended, neutral questions to allow the respondent room to express an answer using his own concepts and constructs, rather than the interviewer's (Dervin, 1983; Dervin & Dewdney, 1986).

T. Wilson (1997) incorporated psychological research into his theory of information behavior, which links information needs and information seeking with uncertainty (Atkin, 1972), stress, and coping. Taylor (1962) describes the information need's passage through a series of stages, from its first rumblings in the mind of the user (visceral need) to its expression as a query (compromised need). Each stage represents a transformation of the need away from its true, native state to a state that is communicable to a human or system. Following Taylor, other important models depict the information need as initially ill-defined, yet owning the potential to increase in shape and focus via information seeking (Belkin, Oddy, & Brooks, 1982 ; Bates, 1989; Kuhlthau, 1991; Marchionini, 1995; Tang & Solomon, 1998; Pennanen & Vakkari, 2002; Vakkari, Pennanen, & Serola, 2003). The research focus has moved

over time from the information need itself to the task or problem behind the information need (Belkin, Oddy, & Brooks, 1982; Soergel, 1985; Dervin & Dewdney, 1986; Leckie, Pettigrew, & Sylvain, 1986; Vakkari, 2001; Bystrom & Hansen, 2002).

2.1.**3 Task-Oriented Frameworks**

Information seeking is an activity people engage in to fulfill other needs (Belkin, Oddy, & Brooks, 1982; Bystrom & Hansen, 2002; Case, 2002). Increasing the level of specificity from models of context-embedded information seekers, task- and work-oriented models allow for much more structure in isolating aspects of the situation for study. General models of information needs and information seeking must necessarily be vague to allow for the variability in the goals and manner of information seeking, and the myriad facets on which information seekers can differ from each other. Describing the information seeking situation in terms of task characteristics allows for greater specificity and variables that can be studied and compared more systematically (Vakkari & Jarvelin, 2005).

Vakkari (2001) developed a model of the task-based information retrieval process that incorporates users' mental models with requirements and expectations of sought information relative to the greater task. He found that mental models and stage of task performance influence several characteristics of the information seeking process, including search tactics and term selection. Relevance and search success, from a task perspective, should be evaluated based on how well the information helps the user to complete the task (Soergel, 1976, 1985; Bystrom & Hansen, 2002). The mechanisms described with Cognitive Work Analysis, above, are specifically

designed to be applied to the study of work tasks. Furthermore, Vakkari & Jarvelin (2005) identified nine dimensions that interact during work-based information seeking and retrieval. Aspects of the dimensions, presented in Table 2.1, can be operationalized for use as dependent variables, independent variables, and focal phenomena for research.

Table 2.1. Interacting dimensions in work-based information seeking and retrieval (Vakkari & Jarvelin, 2005).

Dimension	Description
Work Task	As defined or required by the organization.
Search Task	As understood by workers, organizational practice.
Actor	A worker with knowledge, skills, motivations, and emotions.
Perceived Work Task	As perceived and performed by the actor.
Perceived Search Task	As perceived and performed by the actor.
Document	Information contents as perceived by actor.
Algorithmic Search Engine	Query-to-document matching, ranking.
Algorithmic Interface	Mechanisms for presenting system functions, inputs, and outputs.
Access & Interaction	Between the actor and the interface.

2.1.4 Lesson Planning as Task: The ASSURE Model

This study applied a conceptual framework describing context, information search, and relevance judgment to the task of adding digital library content to lesson plans. In this case, the information seeking task is content selection, and content selection's parent task is lesson planning.

It was important to find a lesson planning model that matched the task's characteristics at an appropriate scope for this particular study. The ASSURE model (Smaldino, Russell, Heinich, Molenda, & Cavanaugh, 2005) describes procedures for

planning instruction with an eye toward the selection of materials to support teaching and learning. The procedures are laid out in the following steps:

- Analyze learners,

- State objectives,

- Select methods, media, and materials,

- Utilize media and materials,

- Require learner participation, and

- Evaluate and revise.

"These steps taken together constitute a 'Case Sample' – or lesson plan – that describes the instructional planning used by a … teacher" (p. 49).

The ASSURE model has been chosen as a task framework for this study because of its emphasis on selection and use of media in "the daily life of the classroom" (Smaldino et al., 2005, p. ii). Several models of instructional design and instructional planning were considered and rejected for various incompatibilities: too broad (e.g., Molenda, 2003), too rigid or complex (Morrison, Ross, Kalman, & J. E. Kemp, 2003; Dick, L. Carey, & J. O. Carey, 2005), no inclusion of content selection as a step (Gagne, Wager, Golas, & Keller, 2005), or they too narrowly applied to the use of instructional media formats (Reiser & Gagne, 1983).

Of narrower scope than all-encompassing lesson-planning models, the ASSURE model is a lesson planning and content selection model for teachers who have decided to incorporate media into their lessons. "If you are going to use media and technology effectively you must plan systematically for their use. … The ASSURE model is a guide to the major steps in this planning" (Smaldino et al., 2005,

p. 47). More local (to the classroom) and less technical than models of instructional

design, the ASSURE model is geared toward teachers, i.e., those who implement

instruction (Smaldino et al. 2005, p. vi). Because of this scope, ASSURE is not a

comprehensive or complete model of the instructional process:

> The ASSURE model – a procedural guide for planning and
> conducting instruction that incorporates media and technology –
> assumes that training or instruction is required. A full-blown
> process of instructional development would begin with a needs
> assessment to determine whether instruction is the appropriate
> solution … [The ASSURE model] is less ambitious than models of
> instructional development, which are intended to guide the entire
> process of designing instructional systems. Such models include
> the procedures of the ASSURE model and the processes of needs
> analysis, subject matter analysis, product design prototype tryout,
> system implementation, and the like. … The ASSURE model, on
> the other hand, is meant for the *individual instructor* to use when
> planning *classroom use of media* and technology (Smaldino et al.,
> 2005, p. 49, emphasis added).

The narrower scope of the ASSURE model is more appropriate for the current

study than broader or more complete models of instructional development because

the current study's conceptual framework is meant to be applied only to the

immediate task of content selection as an information behavior. Because this

conceptual framework pays substantial attention to the *context* within which content

selection occurs, it makes sense to attend to the steps that precede and succeed

ASSURE's Step 3 (Select Methods, Media, and Materials).

2.2 Information Search Process

Moving forward from the contexts and situations that bring forth information

needs, we find users engaged in the information search process, where they

communicate and interact with people and systems to search for information. Section 2.2.1 introduces three general models of information search that break the process down into activities, stages, and subprocesses. Section 2.2.2 describes exploratory search, a category of information seeking that includes learning and investigating, as opposed to more basic or discrete search tasks, like fact retrieval and lookup (Marchionini, 2006). Section 2.2.3 reviews common research methods used in information seeking studies, and Section 2.2.4 summarizes the findings of research on teachers as information seekers.

2.2.1 Stages and Activities of the Information Search Process

Studies of information seeking behavior have found that search processes of many different kinds tend to include a limited number of activity types, and thoughts and feelings about the information search tend to follow the same general progression. While individual models differ in levels of granularity and focus (affective, cognitive, behavioral), the models described below have been designed or expanded to describe the search process in general, independent of user type or task (Case, 2002; Bates, 2005; Kuhlthau, 2005).

Soergel (1985) presents a model of the search process that includes six stepwise functions, which are orthogonal to two ongoing processes. The model was originally conceived in the context of a user working with a human intermediary. Since that situation does not apply in the current context, functions five and six from Soergel's model will not be included in further discussion, as they describe the

intermediary's presentation of and interactive review of results with the user. The four remaining functions are:

- Recognize and state the information need,
- Develop the search strategy,
  - ◦ Formulate the query conceptually,
  - ◦ Select sources and arrange them in a search sequence,
  - ◦ Translate conceptual query formulation into the language of each source,
- Execute the search strategy,
- Review search results and revise search.

The two orthogonal processes are:

A. Interaction, and

B. Monitor the search process and assess results.

Ellis (1989) used a grounded theory approach to study information seeking behavior of academic social scientists and identified six types of search activities which can be used to categorize most search behaviors:

- Starting – making the first moves of the search process,
- Chaining – following promising citations from the source document,
- Browsing – exploring information within an area of interest, "semi-directed searching,"
- Differentiating – filtering search results by comparing and judging the nature and quality of available sources,
- Monitoring – following selected sources to stay abreast of a topic,

- Extracting – systematically working through sources to find relevant content.

Ellis' model has been used to classify search activities in other disciplines (e.g., Ellis, 1993; Ellis, D. Cox, & Hall, 1993; Makri, Blandford, & A. Cox, 2008; Makri & Warwick, 2010) and information environments (Choo, Detlor, & Turnbull, 1999 ; Makri, Blandford, & Cox, 2008). Ellis' model does not suggest any particular sequence of the search activities, but it does provide a stable and descriptive overview of the variety of behaviors that constitute information seeking, many of which go beyond traditional query-review-select activities.

Kuhlthau's model (1991) of the search process is one of the field's most heavily cited models of information seeking. Developed over the course of several studies and combined methodologies, Kuhlthau's model presents a sequential progression of the thoughts, feelings, and activities of the information seeking process. The stages are:

- Initiation – awareness of need, beginning of process;

- Selection of topic and information seeking approach;

- Exploration of the topic's information space;

- Formulation of a topical focus, by synthesizing information gathered thus far;

- Collection of information about the focused version of the topic;

- Presentation of information via incorporation into the task product.

The cognitive aspect of information seeking could be summarized as a gradual increase in specificity of thought and interest in topic. The accompanying behaviors involve shifting relevance criteria from topical to pertinent (i.e., appropriate to the

situation (Soergel, 1985)). During the research studies from which she refined her model, Kuhlthau developed a process survey questionnaire that could capture information about a respondent's stage in the search process at a given time (Kuhlthau, 1991). The survey has since been used in other studies, allowing for results of different studies to be compared on facets related to the model (stage, thoughts, feelings, behaviors) (Kuhlthau, Turock, George, Varlejs, & Belvin, 1989; Byron & Young, 2000; Pennanen & Vakkari, 2002; Vakkari, Pennanen, & Serola, 2003).

Another model, this one from Marchionini (1995), provides a list of subprocesses that comprise the information seeking process. Marchionini's model emphasizes user interactions with electronic information systems and potential iterations among subprocesses in response to system feedback. The subprocesses in Marchionini's model are:

- Recognize and accept an information problem,

- Define and understand the problem,

- Choose a search system,

- Formulate a query,

- Execute search,

- Examine results,

- Extract information,

- Reflect/iterate/stop.

Lenell (2006) used Marchionini's model as a frame for understanding information seeking of science teachers.

Of the information seeking process models presented in this section, the ones that fall first and last, chronologically speaking, have the greatest similarity to each other as well as the highest degree of compatibility with the purpose of this study. These models are Soergel's (1985) functions of and Marchionini's (1995) subprocesses of the information seeking process. Table 2.2, below, shows how Marchionini's subprocesses map to the functions and processes in Soergel's model.

S1 Recognize and state need	M1 Recognize and accept information problem M2 Define and understand problem
S2.1 Formulate query conceptually	M2 Define and understand problem M4 Formulate query
S2.2 Select & sequence sources	M3 Choose a search system
S2.3 Translate conceptual query into source language	M4 Formulate query
S3 Execute search strategy	M5 Execute search
S4 Review results	M6 Examine results
S5 Edit results	
S6 Check helpfulness of results	
SA Interact	M7 Extract information MA Subprocess transitions
SB Monitor	M8 Reflect/iterate/stop
Legend: S – Soergel; M – Marchionini. Soergel & Marchionini items denoted by a letter A or B rather than a number are orthogonal, ongoing processes.	

Table 2.2. Mapping of information search subprocesses (Marchionini, 1995) to functions of the search process (Soergel, 1985).

2.2.**2 Exploratory Search: Query, Browse, Think, and Learn**

Exploratory search is a type of information seeking that tends to be open-ended, iterative, and multi-tactical (R.W. White & Roth, 2009; M. L. Wilson, Kules, Schraefel, & Shneiderman, 2010). Exploratory searches are characterized by affective

and cognitive uncertainties, such as lack of familiarity with the search topic, the information system, or the process of gathering information (R. W. White & Roth, 2009). The term exploratory search describes the cognitive-contextual circumstances and process of information seeking. This concept is broader than its close relative, interactive information retrieval, which Ingwersen (1992) defines as, "interactive communication processes that occur during retrieval of information by involving all the major participants in IR, i.e., the user, the intermediary, and the IR system" (p. 228).

While exploratory search is relatively young as a formal specialization within information studies, the conceptualization of information seeking as potentially exploratory and incremental is not new (e.g., Chang & Rice, 1993). For some time, studies have found evidence of a constructive, evolutionary process that occurs as people interact with information systems. The traces of this evolution can be found by examining different types of interactions and their effects on information seeking outcomes. Browsing and searching, the two most common acts of user-to-system communication are two such interaction types. (In the current discussion, searching refers rather narrowly to user-generated queries submitted through a formal system mechanism).

Browsing and searching activities can be used together to deploy many different cognitive approaches and strategies, even during a single search session (Robins, 1997; Xie, 2000). In her seminal description of berrypicking as an information seeking strategy, Bates (1989) described searching and browsing as separate yet highly integrated activities. Browsing behaviors, which involve moving through and

scanning some physical display of information (especially audio and/or visual), can be recognition-based, interactive, exploratory, and instructive (Canter, Rivers, & Storrs, 1985; Shneiderman, Brethauer, Plaisant, & Potter, 1989; Chang & Rice, 1993). While the levels of focus and intensity may vary (e.g., from casual window shopping to urgently scanning for milk before the grocery store closes), browsing is an intentional act (Chang & Rice, 1993). Canter, Rivers, and Storrs (1985) identified five browsing strategies, listed below.

1. Scanning – superficial search of a large area;

2. Browsing – following a path until objective is reached;

3. Searching – striving to reach a specific goal;

4. Exploring – determining characteristics of the information landscape;

5. Wandering – purposeless, unstructured movement through information.

Differences in strategy and degree of focus can depend on several factors, including goal specificity, topic type, searcher characteristics, collection size, subject divisions, and display type (Marchionini, 1987; Chang & Rice, 1993; Tang, 2002; M. L. Wilson et al., 2010).

Because there are so many motivations and behaviors that constitute browsing, users are best supported when information systems provide meaningful feedback and support for different kinds of navigational interactions (Marchionini, 1987; Waterworth & Chignell, 1991). The most common type of interaction that combines searching with browsing happens when the user submits a query and then browses the results for target information and/or "berries" to incorporate into re-conceptualizing the information need or reformulating the query (Bates, 1989). Bean

& Green (2001) suggest a two-step process by which contributory and inhibitory relevance criteria are used. Contributory relevance criteria, which are usually topical and content-oriented, are used to cast a wide net in the form of a results set. From there, inhibitory criteria are used to filter and narrow. This kind of approach matches well with the query-then-browse paradigm. Studies have found that users appreciate tools that help them visualize and navigate query-based retrieval sets (R.W. White, Ruthven, & Jose, 2002; Shen, Vemuri, Fan, Torres, & Fox, 2006; Kules, Kustanowitz, & Shneiderman, 2006; R.W. White & Roth, 2009; M. L. Wilson et al., 2010).

Even when the results of a query do not directly satisfy the information need, users can still glean new information from system feedback and use that information to fuel another act of communication with the system (e.g., refining a query or following a link). These interactions and iterations are what exploratory search is all about, and experimental findings provide evidence of incremental learning from the search process. For example, searchers have been seen to increase the specificity of their topical vocabulary as they proceed through the information seeking task (Kuhlthau, 1991; Vakkari, 2001; Pennanen & Vakkari, 2002; Vakkari, Pennanen, & Serola, 2003). Searchers who know more about their topics tend to incorporate more concepts into their searches and to make sharper and more definitive relevance judgments than searchers who know less (Tang & Solomon, 1998; Wildemuth, 2004). From studies such as these and models that emphasize the exploratory and interactive nature of information seeking, it becomes clear that the information seeking process is a journey that is at least as important as its destination. Without directly experiencing the give-and-take of the search process itself, users lose the benefit of

gradually constructing a mental model of their topic and its relationship with other topics and with different information objects.

2.2.**3 Methods in Information Seeking Process Studies**

Researching the information seeking process presents fewer problems than researching information needs in that more aspects (although not all) of this process are observable. Studies of information seeking tend to explore relationships between search behaviors and other factors, such as affect (Kuhlthau, 1991), cognition (Kuhlthau, 1991; Pennanen & Vakkari, 2002), topical knowledge and expertise (Vakkari, Pennanen, & Serola, 2003; Wildemuth, 2004), search expertise (Debowski, 2001; Vakkari, Pennanen, & Serola, 2003), and topic characteristics (Waterworth & Chignell, 1991; Tang, 2002; Mardis, 2009b). Table 2.3 shows the types of data that were collected in a selection of information seeking-related studies.

*Table 2.3. Methodologies in information seeking research. Studies with a * included teachers as user type.*

	Jantan* (1994)	Hart* (2008)	Kuhlthau (1991)	Mardis* (2009b)	Lenell* (2006)	Perrault* (2005)	Vakkari, et al. (2003)	Water-worth & Chignell (1991)	Wilde-muth (2004)
Data Types									
Transaction logs or Search diaries	▓		▓	▓	▓		▓		▓
Relevance markings on citations			▓				▓		
Think-aloud							▓		▓
Interview		▓	▓			▓	▓		
Process survey questionnaire			▓				▓		
Survey		▓	▓			▓			
Experimental Scenarios									
Assigned/imposed search task					▓			▓	
Multiple search occasions per person			▓				▓		▓
Pre-test / Post-test									▓

2.2.4 Teachers as Information Seekers

Relatively little research has been done on teachers' information seeking. The studies that were found fell into two categories. The first category includes theoretically-based studies with explicit conceptual frameworks or hypotheses. This category is labeled *Basic research with practical applications*. The second category of studies includes evaluative studies that collected and analyzed data about teachers' information seeking for the purposes of generating *a priori* design specifications and/or *a posteriori* evaluations of digital collections. In this discussion, the second category is labeled, *Applied research with theoretical implications.*

2.2.4.1 Basic research with practical applications

Jantan (1994) investigated high-school physics teachers' use of a CD-ROM of physics-related educational materials. Seventy-two teachers, who were acting as beta-testers for the CD-ROM product, used evaluation logs to record their search activities, indicating:

- Content sections of the product they used,

- Queries they used to search or browse,

- Type of lesson module being worked on (e.g., Demonstration, Lecture preparation, Laboratory activity), and

- Amount of time spent on task (i.e., module-query session).

Independent variables were self-identified expertise category (i.e., either "crossover" with little or no physics background, or "prepared" with significant physics background) and

experience level (10 years or less, 11 - 20 years, or more than 20 years). Crossover teachers were found to select content for a greater variety of lesson component types and spend more time searching per component than prepared teachers, suggesting that teachers with greater expertise in physics needed less content and were able to identify relevant content faster than non-experts. Teachers with less experience (less than 11 years) used the CD-ROM to find content for labs, lectures, and demonstrations, whereas teachers with more than 10 years experience worked mostly on demonstrations. Jantan suggests that this finding indicates that teachers with more experience were seeking content to enhance existing, well-formed lesson plans, while newer teachers were still constructing lesson plans and seeking background information for lectures. Neither of the independent variables in Jantan's study was found to have an effect on information seeking strategies (i.e., browse vs. query, field-specific vs. multi-field keyword queries, Boolean construction).

Perrault (2005) used a diffusion of innovation framework to study biology teachers' online information seeking practices and perceived influences on instructional planning. The study, which included surveys (N=70) and interviews (N=10), found that teachers' information seeking practices influenced their instructional planning in a recursive interplay. Teachers reported a high incidence of unexpectedly bumping into useful information online while searching on another topic. These unexpected information objects might be used for additional background on existing learning concepts or they might inspire entirely new lesson plans or activities. Analysis of teachers' reports brought forth four themes that characterized information seeking for instructional planning:

1. Currency - The biology teachers in this study emphasized the importance of up-to-date information and scientific developments;

2. Sparking Ideas/Gaining Knowledge - Teachers learned new scientific information while seeking information for instructional planning and reported getting ideas for lesson plans and resource materials from their encounters with online information;

3. Resource Management and the Role of Time - Managing and organizing resources online and in the classroom was an ongoing challenge. Teachers also reported constant time-related pressures when planning and implementing instruction;

4. Webs of Sharing - Although teachers were found to value online tools for sharing instructional materials with known and unknown colleagues, sharing among in-school colleagues was more dependent on interpersonal, political, and even physical factors (e.g., widely dispersed classrooms).

In addition to using online resources for their lesson plans, teachers in Perrault's study reported increasing their own knowledge of biological concepts and relationships, which they integrated into their planning practices. Information seeking and content learning were ongoing processes rather than occasional duties.

Lenell (2006) used Marchionini's (1995) model of the information seeking process to guide analysis of ninth-grade science teachers' (N=8) strategies for seeking online information for lesson activities. The study compared teachers' use of Google or the Digital Library for Earth System Education (DLESE) (http://www.dlese.org) to complete an assigned, 30-minute information seeking task. Data included transaction logs, think-alouds, and brief interviews. Analysis incorporated the affordances of the two

search engines as dimensions on which to compare teachers' information seeking

strategies and outcomes. Findings indicated greater efficacy in completing a search task

among teachers with more content-related training than among teachers with more

education-related training, although teachers with less content knowledge had less trouble

with DLESE than with Google for finding instructional content. In both systems, teachers

underutilized advanced or specialized affordances, often in favor of more circuitous

attempts at query reformulation. Teachers' difficulty in adjusting to the specialized

affordances of DLESE were suggested as possibly attributable to "the pervasive influence

of Google experience on users of other search engines" (p. 218). The eighth step in

Marchionini's model, reflection, was found to occur continuously throughout the

information seeking task, beginning as soon as the task was assigned. During this

continual subprocess of reflection, teachers drew on pedagogical knowledge, subject

knowledge, and search knowledge.

Hart (2008) studied information seeking by administrators (N=16), instructional

designers (N=20), teachers (N=147), and students (N=36) in a public, virtual high-school.

He used surveys and phone interviews to collect data about the extent to which different

types of members of the virtual school community use berrypicking strategies (Bates,

1993) when they searched and evaluated information for their school-related duties.

Survey responses suggested berrypicking during search and evaluation, except for the

case of subject searches. This finding, called an anomaly by Hart (p. 120), was

inconsistent with other berrypicking research. It could be an artifact of the survey

instrument or Hart's operational definition of berrypicking.

2.2.4.**2 Applied research with theoretical implications**

Beginning in 2000, Recker and colleagues from Utah State University began an NSF-funded partnership with the National Science Digital Library (NSDL) (http://www.nsdl.org) to design, implement, and observe usage of Instructional Architect, a tool that integrated teacher-authorship of learning objects with use of NSDL's collection of learning resources for the areas of science, technology, engineering, and mathematics (Recker, Giersch, Walker, Halioris, Mao, & Palmer, 2007). Throughout the duration of the partnership, Recker and various colleagues have published studies and reports on both system-oriented and user-oriented aspects of the creation, implementation, evaluation, and modification of Instructional Architect. Some of these studies have investigated teachers' motivations, barriers, strategies, and criteria for using digital resources as content in their lesson plans (Dorward, Reinke & Recker, 2002; Sumner, Khoo, Recker & Marlino, 2003; Recker, Dorward & Nelson, 2004; Recker et al., 2007). Relevant findings from these studies include:

Selection Criteria:

- Scientific accuracy (this one considered of utmost importance (Recker, Dorward, & Nelson, 2004));

- Classroom-ready resources (no need for modification);

- Common, platform-independent formats;

- Current;

- Real life data;

- Age-appropriate (see also Karchmer, 2001);

- Related to core concepts from state curriculum (see also Karchmer, 2001).

Design preferences for digital collections:

- Teachers wanted environments where materials were pre-screened for educational purposes;

- Teachers wanted resources to be indexed with pedagogically-relevant metadata, such as grade level, subject area, and relevant standards (see also Hedtke, Kahlert, & Schwier, 2001);

- Information objects should be described at the lowest available level of granularity, such as activities or worksheets, not lesson plans or units;

- Teachers wanted to combine materials from multiple sources.

In their work with teachers at all levels to generate a Web site evaluation rubric, Sumner et al. (2003) learned that teachers' relevance judgments depended on the pedagogical purpose at hand. For example, while reporting bias would normally be considered a rejection criterion (i.e., presence of bias would result in rejection of the resource), teachers who wanted to teach their students about information literacy might want to find biased sources to present as examples. In this case, the design recommendation was that biased resources be included in the collection and indexed as such. "There will always be a role for some human-generated metadata involving informed judgments with respect to the range of learning activities for particular educational resources" (Sumner et al., 2003, p. 277). Sumner et al. described teachers' relevance judgment process as moving on a "continuum of tolerance," where few criteria were deal-breakers, and the positives and negatives of various facets of a resource were weighed against each other.

Mardis (2009b) examined search logs from the Michigan Teacher Network, a digital library of educational materials. Of the 337,598 time-stamped search strings collected between 2004 – 2006, fewer than 500 searches were for curriculum-related content. The content of the search strings suggested that teachers used this particular resource to find information about daily practice and the work of teaching. Hedtke, Kahlert, and Schwier (2001) studied how teachers in Germany used the Internet to find material for a social science course and found that teachers planned their instructional activities around available material. Teachers were characterized as using a hunt-and-gather approach to gather materials for their private collections. Like the teachers in Sumner et al.'s (2003) study, teachers in this study said they wanted a pool of classroom-ready material, arranged by subject, grade level, and curriculum unit (Hedtke, Kahlert, & Schwier, 2001).

2.3. Relevance

> "To be found relevant is to be information. To be informative
>
> is to be found relevant" (Harter, 1992, p. 611).

Conversationally, *relevance* is the term we use to describe information that fits the circumstances. In scholarly discourse, the matter turns out to be significantly more complex. Relevance, widely believed to be the core concept of information studies, has evaded consensus definition. There are, however, two broad, opposing definitions that correspond with the system-oriented and user-oriented perspectives described above. According to the system-oriented view, relevance is the relationship between a query and

an information object. In this case, relevance is objective and stable across time and situation. The user-oriented definition of relevance sees relevance as the relationship between an information need and an information object. This definition is the point of departure for many different interpretations of relevance, since two of its defining concepts – *information* and *information need* – are themselves controversial, as was discussed in Section 2.1. Aside from disagreements on *the* definition of relevance, it is widely acknowledged within the user-oriented school that relevance is subjective, situational, and dynamic (P. Wilson, 1973; T. Wilson, 1981; Belkin, Oddy, & Brooks, 1982; Soergel, 1985; Schamber, Eisenberg, & Nilan, 1990; Harter, 1992; Ingwersen, 1992; Kekalainen & Jarvelin, 2002; Choi, 2000; Lawley, Soergel, & Huang, 2005; Hung, 2006; A. Taylor, 2009).

One of the great difficulties in defining relevance comes from the difficulty in defining a successful information retrieval transaction. Under what circumstances is a retrieval transaction successful? If the user is satisfied? But what if, feeling satisfied, he unknowingly walked away with incomplete or faulty information? How about if the user got what he was looking for? What *was* he looking for: what his query said or what he was thinking? What if the user did not find the information he needed in the system, but he did see something in the system that gave him an idea of where else to look? Did the system succeed?

As P. Wilson's (1973) definition of situational relevance holds that information cannot be deemed relevant until it is learned of and accepted by the user, the conundrum becomes clear. An information system cannot identify a relevance value that does not yet exist. Another confounding factor in this equation is the documented difficulty users have

in constructing systemically valid queries (notwithstanding the quality of their semantic proximity to the information need) (Belkin, Oddy, & Brooks, 1982; Waterworth & Chignell, 1991; Marchionini, 1995; Debowski, 2001; Pennanen & Vakkari, 2002; Vakkari, Pennanen, & Serola, 2003; Wildemuth, 2004).

Although relevance itself is unobservable, dynamic, and subjective, *relevance criteria* are significantly more amenable to research. Relevance criteria are the individual elements or characteristics that a user looks for or uses when searching, evaluating, selecting, and rejecting information objects. Fitzgerald & Galloway (2001) found that relevance judging incorporates three separate, yet interconnected and concurrent cognitive processes: topical relevance matching, higher-order evaluation, and decision making. Evidence of relevance criteria comes from user reports, which are inherently subjective. This leaves room for misinterpretation or misreporting by researchers or respondents, but the gradual accumulation of similar or consistent findings across such studies increases their reliability.

Two broad statements about relevance have been especially prevalent in research findings. First, perceptions and judgments of relevance change as the user travels through the information seeking process, suggesting that relevance is a dynamic construct (Tang & Solomon, 1998; Choi, 2000; A. Taylor, 2009). Bateman (1998) found no significant change in relevance judgments, but this could be attributable to characteristics of her methodology, including relatively fine distinctions (six process stages, and only "highly" relevant documents considered) and small sample (35 respondents) (A. Taylor, 2009). The second widely-seen finding is that topicality is the central, most important criterion in almost every relevance judgment situation (Tang & Solomon, 1998; Barry &

Schamber, 1998; Wang & M. D. White, 1999; Choi, 2000; Vakkari & Hakala, 2000; Lawley, Huang, & Soergel, 2005; Yang, 2005).

2.3.1 Studies of Relevance Criteria

There have been many studies that enumerate users' relevance criteria and/or describe when and how the criteria are used. While some idiosyncratic criteria exist for particular tasks or user types (Barry & Schamber, 1998; Lawley, Huang, & Soergel, 2005; Hung, 2006), there are certain criteria types that can be found from study to study (Barry & Schamber, 1998; Wang & M. D. White, 1999; Choi, 2000; Vakkari & Hakala, 2000; Kim, 2004; Yang, 2005; A. Taylor, 2009). Table 2.4 lists criteria that are found in previous studies. The first column contains criteria *categories* that were identified by Barry and Schamber (1998).

Table 2.4. Relevance criteria identified in research studies.

Barry & Schamber (1998)	Kim (2004)	Lawley et al. (2005)	Hung (2006)
Criteria categories	Various users of VHA	Content selection by teachers, VHA	Image search by journalists
Depth/Scope/ Specificity Accuracy/ Validity Clarity Currency Tangibility Quality of sources Accessibility Avaialbility of information Verification Affectiveness	Topicality Accessibility Richness Emotion Comprehensibility Duration Novelty of content Acquaintance Access to the interviewee	Relationship to topic or theme Relates to other school work Variety for the classroom Vocabulary Positive message for students Role of interviewee in Holocaust events Students connect with passage Students identify with interviewee Radical difference from students' reality Represents different populations Race Age of interviewee at time of described events Expressive power Language and verbal expression Nonverbal communication Diction Flow of interview Developmental appropriateness Acceptability to stakeholders Length-to-contribution ratio Technical production quality	Symbol Composition Consequence Emotion Interest Text Topicality Context Implication Facial expression Location Color Powerfulness Equality Typicality Appearance Posture Action Content Familiarity Importance Aesthetic Angle Attraction Caption Graphic Uniqueness Gender Lighting Confrontation Controversy

2.4 Conceptual Framework and Research Questions

The research above shows that information search is a process that is defined and influenced by the context from which it arises. Relevance judgment is a decision making process that arises out of the subjective context to be applied during information search. While many models of information seeking consider two and sometimes all three of these elements, no models have been identified from this review process that give context, information search, and relevance criteria equal prominence, nor do they depict specific relationships among all three elements. The conceptual framework presented in Figure 2.4 extracts concepts from well established models and combines them in a new way to depict context as the source or cause of information seeking and individual relevance criteria. In this depiction, relevance criteria are the bridge that connects the information need context with the search process.
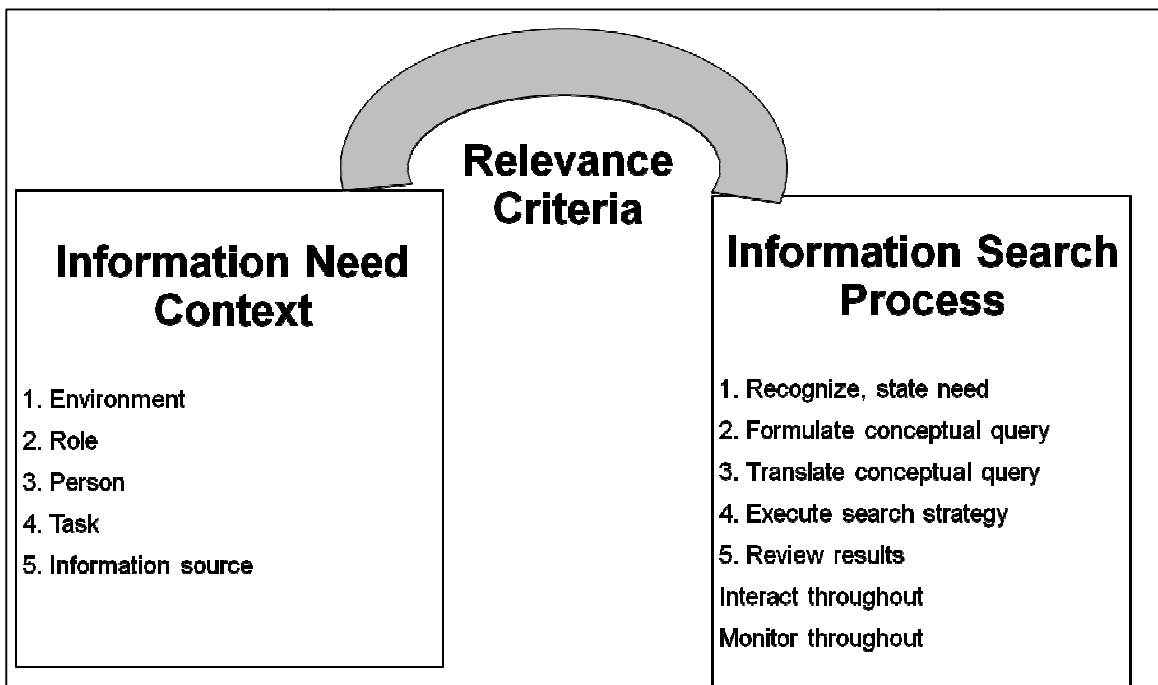
Figure 2.4. Conceptual framework.

From this conceptual framework arise the following series of research questions:

RQ1. What are the characteristics of the information need context

that underlies content selection?

RQ2: What are the characteristics of the information search process

when teachers select lesson plan content?

RQ3: What relevance criteria do teachers use to search for and select content?

RQ4: How do characteristics of the information need context interact with the

information search process?

RQ5: How do characteristics of the information need context interact with relevance

criteria?

RQ6: How are relevance criteria used and refined during the information search process?

Content selection is a type of information seeking that teachers perform during the task of

lesson planning (Jantan, 1994; Perrault, 2005; Lawley, Huang, & Soergel, 2006; Lenell,

2006) and as such may be driven by some combination of the context layers described in

this conceptual framework. Using the research methodology described in the next

chapter, this study applied the conceptual framework in Figure 2.4 to teachers' content

selection from the Shoah Foundation's Visual History Archive of Holocaust survivor

testimony. The first three research questions from the comprehensive research program

were explored in the setting described in Chapter 3.

Chapter 3: Methodology

> Processes of thought are not confined however, to matters of arithmetic and statistics. In fact, every time one combines and records facts in accordance with established logical processes, the creative aspect of thinking is concerned only with the selection of the data.
>
> — *Vannevar Bush, 1945*

3.1 Research Orientation

This study was conducted within the tradition of qualitative research, which is well-suited for inquiry that is field-focused, process-oriented, exploratory, inductive, and which includes data that are verbal and richly descriptive (Patton, 1980; Creswell, 1998). Teachers were observed during their selection of materials for new or existing lesson plans, with specific attention to the information related behaviors that occurred throughout. Data collection and analysis were guided by the concepts and relationships described in the conceptual framework. Using constant comparison, the researcher combined deductive and inductive thinking and coding techniques by iteratively moving back and forth between concepts and data (Creswell, 1998; Strauss & Corbin, 1998). In this way, data, existing theories, and the researcher's background and thought processes converged to create a description of the characteristics and interactions of context, information search, and relevance criteria during content selection for lesson planning. These findings are described in Chapters 4 – 6 and discussed in Chapter 7.

3.2 Study Setting

This study was set within a professional development workshop for teachers ("2006 Holocaust and Tolerance Lesson Design Workshop: Incorporating Oral History Materials into Classroom Lessons"), which was held at the University of Maryland August 7 – August 11, 2006. Eight teachers from public secondary schools in and around Maryland participated in the workshop and the research study. The workshop was organized by the MALACH (Multilingual Access to Large, Spoken ArCHives) project, a research group affiliated with UMIACS (University of Maryland Institute for Advanced Computer Studies), and in collaboration with the College of Information Studies and the University of Southern California Shoah Foundation Institute for Visual History and Education (SFI). The workshop's centerpiece was a custom software tool that integrated a lesson planning module with an information retrieval (IR) system. The IR system provided access to a 1,000-testimony subset of the Visual History Archive (VHA), the Shoah Foundation Institute's extensive database of videotaped oral history testimony from witnesses and survivors of the Holocaust. The goals for the workshop were threefold, with the third goal being the impetus for the current study:

- To share with local educators some of the technologies developed in the MALACH project and the content to which these technologies have been applied,

- To evaluate the effectiveness of MALACH-developed technologies, including automatic speech recognition (ASR), text classification, information storage and retrieval, and an integrated user interface for searching and lesson-planning,

- *To observe and describe context, information search, and relevance criteria during content selection using the VHA.*

Data collection for this study occurred before and during the workshop. The remainder of this section will describe the integrated system for lesson planning and information retrieval that was used at the workshop (Section 3.2.1) and the implementation of the workshop (Section 3.2.2), including selection of participants, workshop activities, and the workshop environment.

3.2.1 Description of Workshop System

The workshop system was designed and constructed by members of the MALACH research group as a custom environment for teachers' use of the VHA. The workshop system included two main functional components: a lesson-planning module and a search module. Figure 3.1 is a screen capture of the workshop system's default view, which splits the screen between the lesson planning interface (left side) and the IR interface (right side). Each of these two components will be described in more detail below.
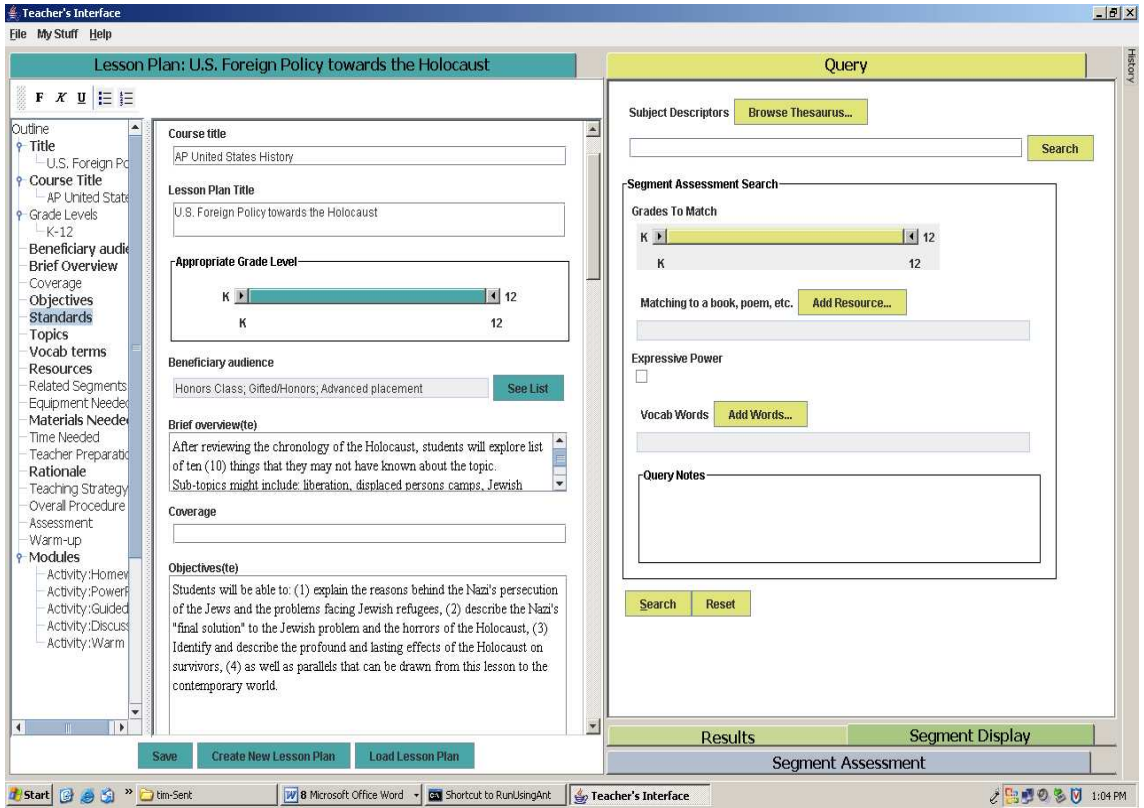
Figure 3.1. Workshop system default view.

3.2.1.1 Lesson Planning Component

The workshop system allowed for the creation, editing, searching, and sharing of lesson plans and lesson plan modules. A lesson plan module is a functional portion of a lesson plan, such as an activity or assignment. A module is associated with its parent lesson plan, but it is indexed by the system as an independent unit for purposes of retrieval. A user creates a lesson plan (or module) by filling out the lesson plan template presented in the interface. The available fields (none of which require user input) are:

- Lesson plan title,

- Course title,

- Related segments (testimony portions from VHA),

- Grade levels,
- Beneficiary audience,
- Brief overview,
- Coverage,
- Objectives,
- Standards,
- Topics,
- Vocabulary terms,
- Resources,

- Equipment needed,
- Materials needed,
- Time needed,
- Teacher preparation required,
- Rationale,
- Teaching strategy,
- Overall procedure,
- Assessment,
- Warm-up.

Figure 3.2 shows the workshop system with the screen adjusted to maximize the lesson planning component's template and outline. The lesson plan outline, found along the left side of the screen, provides navigation within the lesson plan and an at-a-glance summary. Field names that are bolded in the outline indicate fields that have been filled out by the user. In Figure 3.2, the module highlighted in blue, "Guided Reading," is the module that is active for editing in the main pane of the lesson planning component.
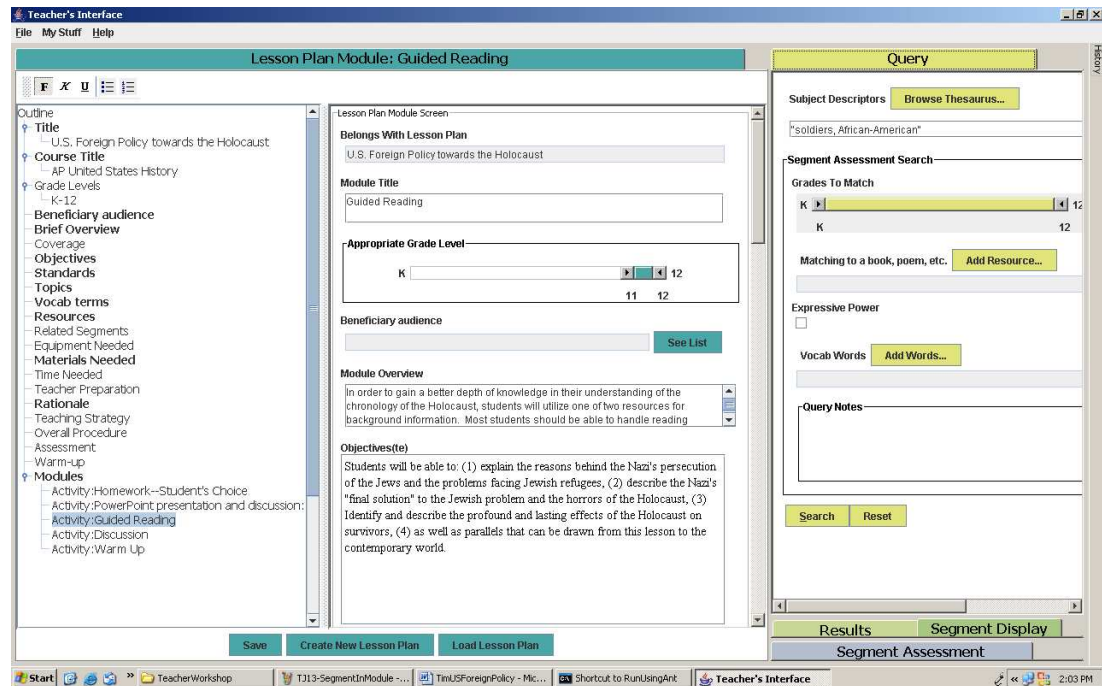
Figure 3.2. Workshop system lesson plan view.

3.2.1.**2 Information retrieval component**

3.2.1.2.**1 Collection**

The IR system contained 1,000 English-language testimonies from the VHA. The

testimonies were videotaped (and digitized) interviews with people who witnessed and

survived the Holocaust. Before people were interviewed on camera, they completed a pre-

production interview and a questionnaire to provide an overview of the basic facts of their

lives (birth date and place, places lived, occupations, overview of Holocaust experiences).

Questions for the testimony interviews were derived from these overviews. While specific

interview protocols varied from person to person, interviewees were encouraged to

describe pre-war events and memories, experiences under German occupation, significant

moments, post-war experiences (immediate and extended), and thoughts on faith,

meaning, and messages for future generations (USC Shoah Foundation Institute, 2007).

During post-interview processing, testimonies were manually divided into segments of 2-5 minutes, which were professionally cataloged using terms from a custom thesaurus of over 50,000 terms, including place names, time periods, and experiences. For some segments (i.e., those which had been transcribed using the MALACH project's ASR technology), the cataloger-assigned descriptors were supplemented with thesaurus descriptors that were assigned by an automatic text classification procedure that was developed within the MALACH project. These machine-generated descriptors were displayed in a separate field called "Additional Keywords," so that users could discriminate between human- and machine-generated indexing.

In addition to assigning thesaurus descriptors, the catalogers from the SFI also created segment summaries, which described the gist of a segment's topical coverage in a few sentences. For example,

> [Interviewee] mentions the labor he was forced to perform in Auschwitz-Birkenau. He briefly talks about the dehumanization that prisoners experienced in the camp. [Interviewee] discusses survival techniques in the camp.

While viewing segments, catalogers would make notes about the segment's content in a free-text field called "Segment Scratchpad." These were notes the catalogers took for their own use in preparing segment descriptions and assigning keywords. They contained abbreviations, shorthand, and misspellings, and they were not edited or spell checked. The scratchpad comments for the segment described above say,

> They made us lug bricks in Birk, not really work, not organized, just kept humiliating you. You were an animal, only thought of survival. You were not human and you did not want to be human bc the human part did not survive. I was with dad. i did not talk aobut (sic) anything to dad. He used to take chances for me. he wnt (sic) to gypsy barrack for food. he took chances. had a few cousins in camp, they became helpers to kapo and underkapo and dad got bread and soup from them. dad told me not to be conspicuous and not to

be alone, in the middle of crowd. i survived Birk

At the workshop, teachers were encouraged to complete "Segment Assessments" for their own use in final segment selection. To create Segment Assessments, teachers filled out a template that was built into the IR component. The content of each Segment Assessment was added to the segment's metadata and indexed for retrieval. When teachers retrieved segments that had been reviewed, the assessment text would be seen in the Segment Display.

To review, each testimony was divided into segments, and each segment was indexed with the following information, which was displayed in the IR interface:

- Descriptors (cataloger assigned),

- Additional descriptors (machine assigned),

- Segment summary (cataloger assigned),

- Segment scratchpad (cataloger assigned),

- Segment assessment (user assigned).

3.2.1.2.2 Interface

The right side of the screen contains the interface for the IR component of the workshop system. The default view shows the Query function maximized (Figure 3.1, above), which includes a box for text entry as well as input mechanisms for other query dimensions:

- Grade level,

- Matching resource (book, poem, etc.),

- Expressive power,

- Vocabulary words.

The data for these additional query dimensions were added by teachers who used the

Segment Assessment feature to describe and review segments.

Once a query was submitted, the Results tab would maximize, as shown in Figure

3.3 (some words are blurred to protect the identities of VHA contributors).
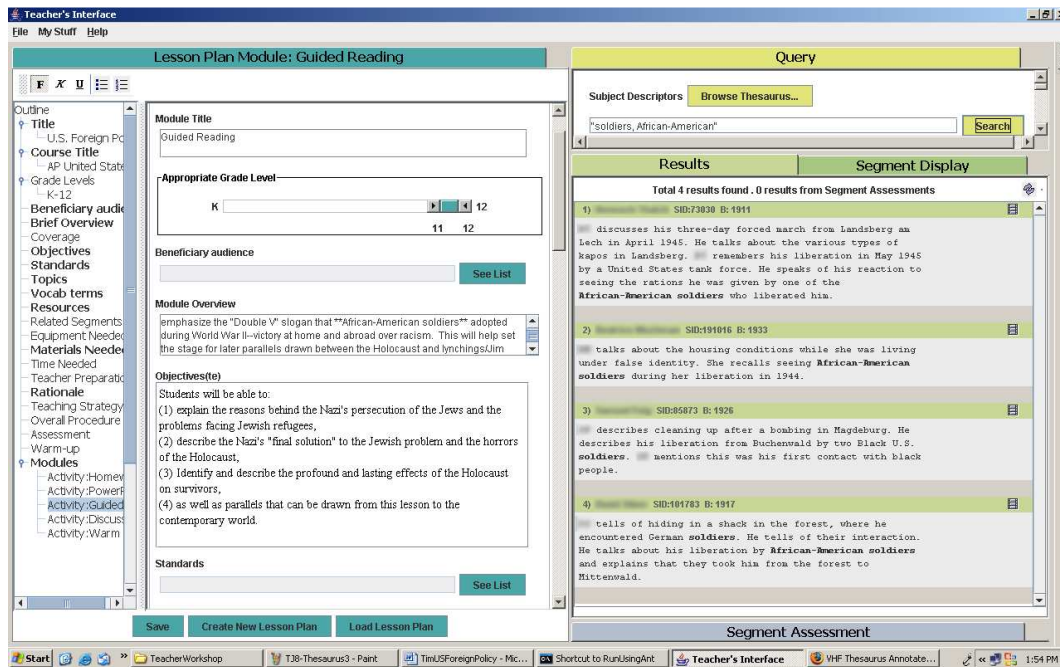
Figure 3.3. Workshop system Results display.

From the results list, a user may click on the film icon to launch the media player (in a

separate window) and view the segment. The user may also click on a segment title to see

more detailed information about that segment (Figure 3.4). Among the sub-tabs that

organize information within the Segment Display, the user can view segment details

(default), summary data about the interviewee (Person tab), a summary of the Testimony

that contains the segment, or a Transcript of the segment (if one had been generated by automatic speech recognition).
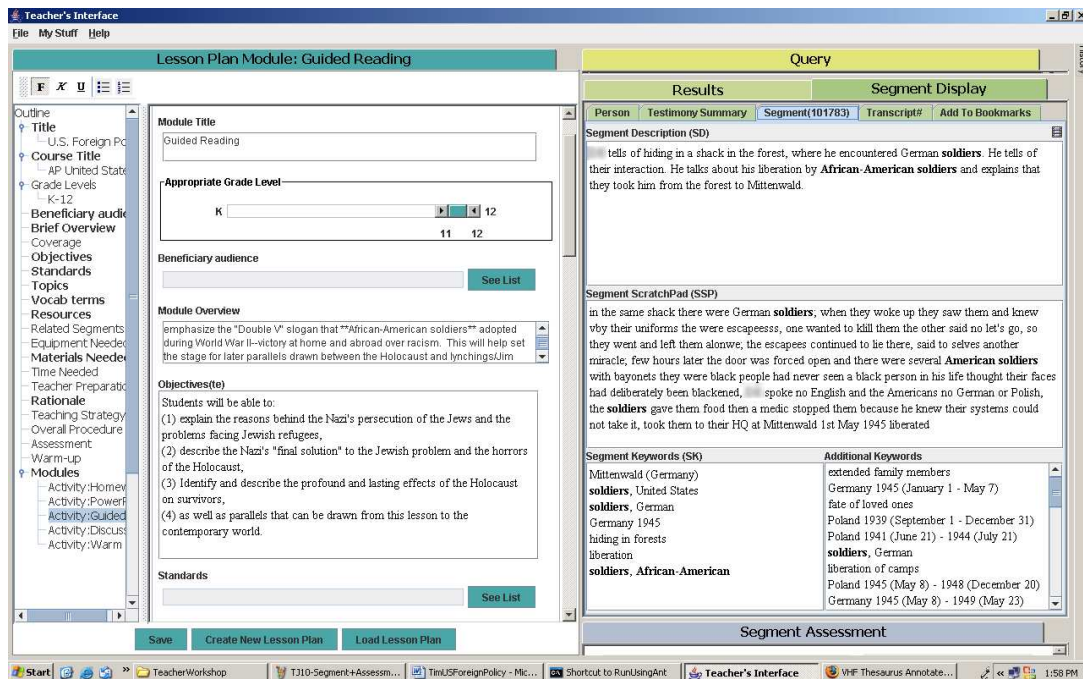
Figure 3.4. Workshop system Segment Display.

When the user clicks the Segment Assessment label or launches the media player to watch a segment, the Segment Assessment tab maximizes to reveal a template where users can describe the following aspects of the current segment (see Figure 3.5):

- **Description and notes** – a free-text field, used by most teachers to describe what they liked or disliked about the segment for the current lesson plan or purpose;

- **Subject descriptors** – a field where the user can select thesaurus descriptors to supplement the ones that were assigned by SFI and automatic classification;

- **Appropriate grade level** – a slider widget where the user can specify minimum and maximum appropriate grade level to view the segment;

- **Matching to a book, poem, etc.** – a field where the user can select from a list of intellectual works of any sort (book, poem, movie, short story, song, historical document, etc.) that can be related to the current segment. If the desired work is not in the list, the user can instantaneously update the list, then select the newly-added item.

- **Vocab words** – a field where the user can select from a list of vocabulary words that can be related to the current segment. If the desired term is not in the list, the user can instantaneously update the list, then select the newly-added item.

- **Expressive power** – a check-box where the user can click to indicate that a segment has a high degree of expressive power, a facet that was identified by teachers in a previous study using this collection as desirable for indexing and retrieval (Lawley, Huang, & Soergel, 2005).
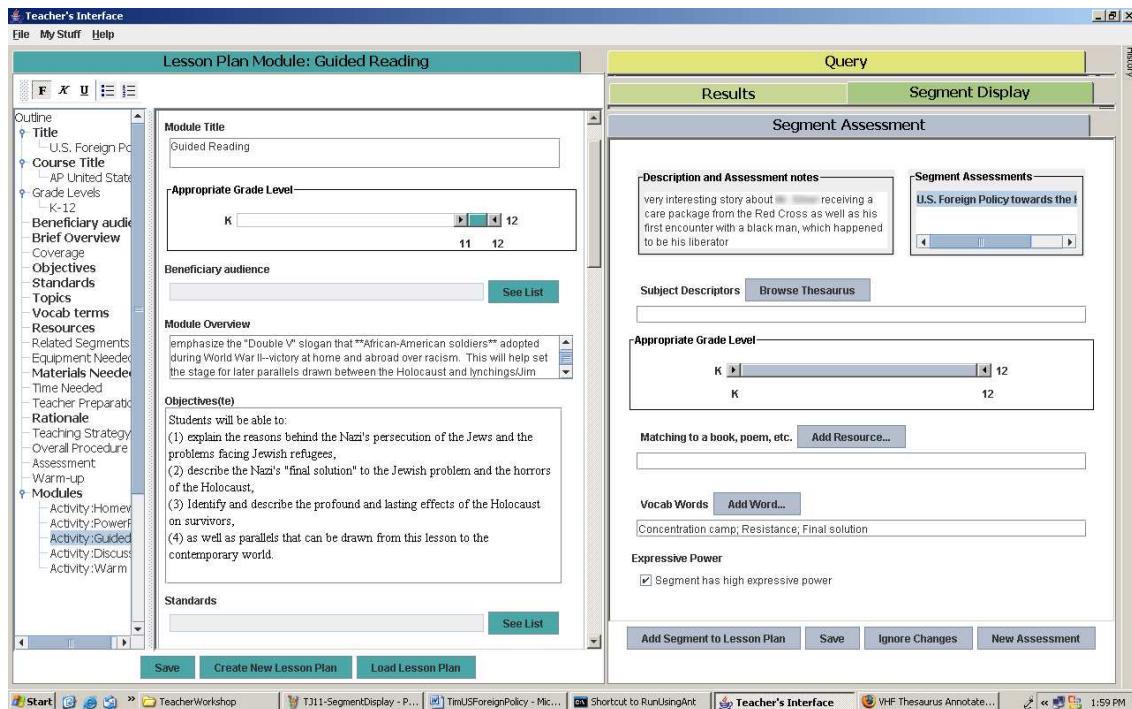
Figure 3.5. Workshop system Segment Assessment template display.

3.2.1.3 Links between lesson plans and segments

Among the components of the workshop system were several places where data elements connected or interacted. Most fundamentally, a segment and a lesson plan (and/or module) became connected when a user clicked to add the active segment to the active lesson plan. This connection could only be broken if the user deleted the segment from the lesson plan or deleted the lesson plan entirely. There was also a three-way relationship between a lesson plan, a segment, and a segment assessment. Any segment assessment was connected to the segment it described. Additionally, the segment assessment was connected to the lesson plan that was active when the teacher created the segment assessment. Since teachers were expected to describe a segment in terms of its suitability to a particular use situation (i.e., lesson plan element), the workshop system was designed

to maintain this relationship as a link that could be followed by users who come across

another user's segment assessment.
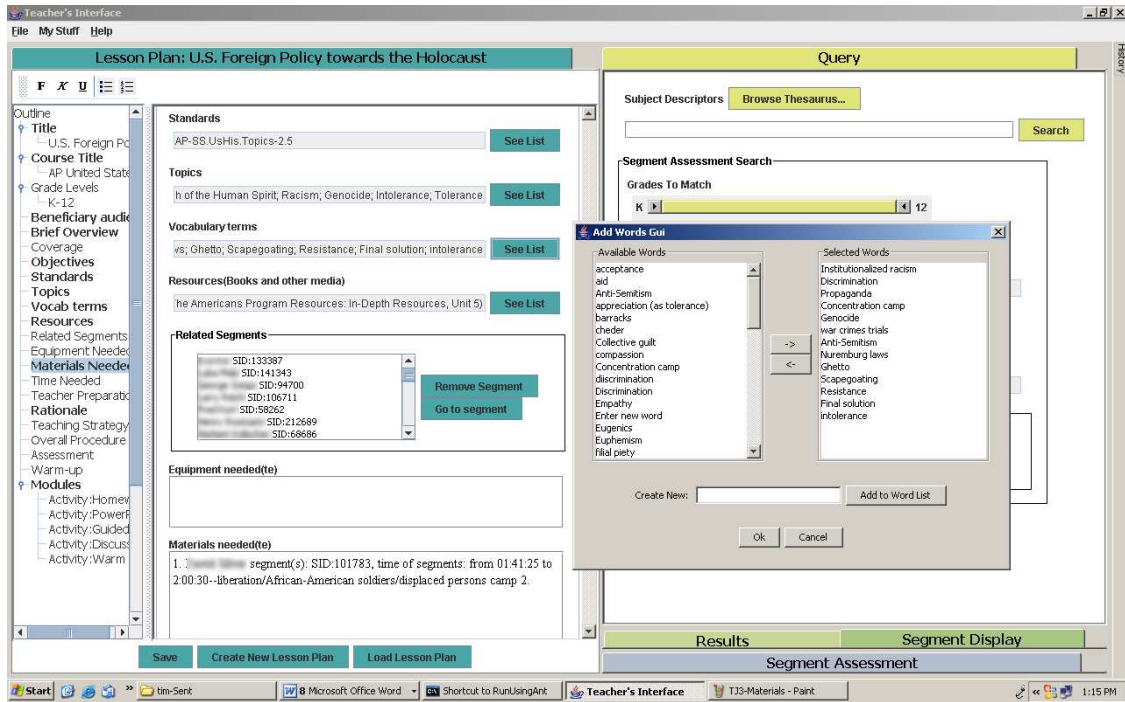
Figure 3.6. Vocabulary list interaction interface.

In addition to these connections, there were also three data fields that were shared

among the lesson plan template, the query template, and the segment assessment template.

These fields are Grade level, Vocabulary words, and Resources (i.e., intellectual works, as

described in the previous section). Table 3.1 describes how each data field comes into

play in each system component. Two of the fields – Vocabulary words and Resources –

require the user to select the desired word or resource from a list. Figure 3.6 shows the list

interface for Vocabulary words. The same list of vocabulary words (or resources, as the

case may be) populates the selection box, whether it is called from the lesson plan, the

query, or segment assessment template.

Table 3.1. Relationships between template/display fields and system components.

	Lesson Plan	**Query**	**Segment Assessment**
Grade level – slider widget to specify one grade or a range between K and 12.	A teacher can indicate for which grade level(s) the current lesson plan might be appropriate.	When searching for segments, the user can narrow results to segments that have been marked as appropriate to those grade levels.	When describing a segment, the user can indicate for which grade level(s) the segment might be appropriate.
Vocabulary words – select from list; user can instantaneously add item to list if needed.	The teacher can indicate which vocabulary words are defined or explored in the lesson.	When searching for segments, the user can narrow results to segments that have been marked as pertinent to one or more selected vocabulary words.	When describing a segment, the user can indicate which vocabulary words are used or exemplified in the segment.
Resources – select from list of intellectual works; user can instantaneously add item to list if needed.	The teacher can indicate which resources are used or discussed in the lesson plan.	When searching for segments, the user can narrow results to segments that have been indexed as relatable to one or more selected resources.	When describing a segment, the user can indicate to which resources a segment is relatable.

3.2.1.**4 Thesaurus**

The SFI indexed segments using a controlled vocabulary of more than 50,000 terms.

These terms were made available to users in the form of a custom thesaurus, a

conceptually-arranged hierarchy of concepts that provide intellectual and lexical access to

the collection. The thesaurus provided intellectual access by presenting users with a list of

concepts that mapped the structure and content of the VHA. The thesaurus provided

lexical access by pointing users to the formulations used by indexers so that they could

copy these formulations into their queries and search using the same morphology and

spelling as the segment surrogates. The thesaurus's top hierarchical level contained the

following headings:

- living conditions,
- economic life,

- government and political life,
- cultural and social life,
- persecution experience,
- responses to persecution,
- wartime,
- liberation and post liberation,

- general history,
- world,
- people,
- type hierarchy (e.g., concepts, activities, objects, places),
- elemental concepts.

Figure 3.7 shows a page from the thesaurus that contains descriptors about resistance, which was Alan's first content selection topic at the workshop.

JB40	JC resistance and underground (CONTAINER ONLY)	**JC12.4**
JB40	**postwar reflection upon Holocaust and/or war-related experience**	
JB42	**post-liberation awareness of the Holocaust**	
JB44	**Holocaust-related dreams**	
JB46	**survivor's memory**	
JB48	**survivor guilt**	
JB50	**reasons for giving testimony**	
JB52	**message for the future**	
JB54	**aspirations for the future**	
JB56	**war-related experiences, willingness to discuss**	
JB58	**war-related experiences, reluctance to discuss**	
JB60	**Holocaust experiences, willingness to discuss**	
JB62	**Holocaust experiences, reluctance to discuss**	
JB64	**liberator experience, reluctance to discuss**	
JB66	**humor about Holocaust experiences**	
JC	**resistance and underground (CONTAINER ONLY)**	
JC2	**sabotage**	
JC4	**underground publications**	
JC6	**partisan family camps**	
JC8	**arms procurement**	
JC8.2	. arms procurement in hiding	
JC10	**resistance**	
JC10.2	. resistance, armed	
JC10.4	. resistance, non-violent	
JC10.6	. resistance, spiritual	
JC10.8	. resistance organizations	
JC10.10	. discussions of resistance	
JC10.12	. aid: assistance in resistance	
JC12	**resistance fighters**	
JC12.2	. contact with resistance fighters	
JC12.4	. resistance fighters, Armenian	

Figure 3.7. Thesaurus page.

The impetus and orientation of the thesaurus were historiographic. The Holocaust was a moment in history, and the creation (interview protocols) and description (indexing) of survivor testimonies centered on events and experiences that preceded, encompassed, and succeeded this moment. Much of the appeal of the VHA came from the individual stories, experiences, and perspectives offered by interviewees. But these individual stories and experiences were framed within the experiential, social, political, economic, and geographical dimensions through which events are understood by writers and readers of history. As a consequence, the VHA's segments, as indexed, were more aligned with the ontology of history teachers than the ontology of English teachers. For better alignment with the ontology of English literature and language arts, the VHA would need to be organized and described using the dimensions of communication, language, and literature. While English teachers could find descriptors for some topics and experiences in common between testimony segments and works of literature, there were no descriptors for concepts such as narrative, imagery, symbolism, tone, purpose, and grammar. These and more dimensions of English literature and language were contained in the VHA, but they could only be found by recognition while watching testimony, not by command.

3.2.2 Description of Workshop

The 2006 Holocaust and Tolerance Lesson Design Workshop was conceived and marketed as a professional development opportunity for public high school teachers and library media specialists, which would include seminar-style instruction sessions about Holocaust and tolerance teaching as well as hands-on encounters with the workshop

system and the VHA. See Appendix A: Email Announcement of MALACH Teacher

Workshop and Appendix B: Workshop Web Page.

3.2.2.**1 Recruitment and Selection of Participants**

Study participants were recruited concurrent with marketing for the MALACH Teacher

Workshop. Throughout the workshop's marketing materials, participation in a research

study was described as an activity integral to workshop participation. Participants would

be compensated for participation with a $500 stipend. While the workshop materials had

encouraged teachers to apply for the workshop in colleague teams, the vast majority of

statements of interest came from individuals who applied to the workshop alone.

Furthermore, only teachers applied to the workshop; there were no applications or

expressions of interest from school library media specialists. Ultimately, the workshop

organizers adjusted their expectations and requirements to allow a teachers-only

workshop and individual applicants.

Twenty-two teachers stated their interest in the workshop. Selection criteria

included:

- **Public school** –In order to observe the effects of standards, standardized
  curricula, and standardized assessment on content selection, only public
  school teachers were eligible, since standards play a different role in private
  education;

- **Grade level** – Only high school teachers were accepted so that participants
  would come from similar frames of reference with respect to their students'
  developmental stages and the format of high school education;

- **Subject(s) taught** – An equal balance of English and social studies was sought, since both disciplines have tie-ins with the Holocaust;

- **Amount of experience** – A range of experience levels was sought;

- Alignment of **application statement** with stated workshop goals;

- **Availability** to participate in entire workshop.

The recruitment method and selection criteria present limitations to this study. These limitations are discussed in Section 3.7.

Table 3.2 provides an overview of the workshop's participants. Section 3.3 contains more thorough descriptions of each teacher. Pseudonyms are used for the names of the teachers and their school districts.

Table 3.2. Overview of workshop/study participants.

		School district	**Subject taught**	**Years teaching**
Team 1	Carl	Yellow County	Social studies	11
	Jimmy	Yellow County	Social studies	4
	Mary	Consultant	English	8
Team 2	Lily	Green County	Social studies	5
	Wendy	Green County	English	15
Team 3	Alan	Blue County	Social studies	1
	Cory	Blue County	English	12
	Ray	Blue County	English	Pre-service only

One of the participants, Mary (Team 1), was a consultant who conducted creative writing workshops at schools throughout metropolitan Washington, D.C. She expressed a wish to participate in the workshop in order to explore the VHA for use in her writing workshops, some of which dealt with Holocaust concepts and literature. Mary also

wanted to take advantage of the opportunity for instruction and collaboration about lesson plan topics and techniques. Her work called for her to submit a lesson plan or syllabus to personnel at the schools where she conducted her workshops, and these lesson plans had to align with the course or program within which the writing class was embedded.

3.2.2.2 Workshop Format and Activities

At the workshop, participants were assigned to teams by county. Each team had at least one representative from each subject discipline and at least one member with more than ten years of teaching experience. The two history teachers from Yellow County teamed with the creative writing consultant to enable collaboration for all three parties and to bring an English language arts perspective to an otherwise mono-disciplinary team. Holocaust educators enthusiastically promote cross-disciplinary study of the Holocaust (Totten & Feinberg, 2000). Neither the humanist themes nor the historical context can be appreciated without some understanding of the other.

The workshop schedule combined activities for the whole group together (seminar-style instructional sessions and group discussions) with work sessions where each team would work in its assigned room. Instructional sessions were led by workshop instructors, whose areas of expertise included Holocaust teaching, collaboration, information organization and retrieval, the workshop system, and the VHA. Appendix E shows the workshop schedule with a summary of each session's content. The first two days included more group instruction, with less time for individual and small group work. As the workshop progressed, work sessions became longer. On Friday, the teachers gathered to present and discuss their lesson plans.

During work sessions, each teacher worked in his or her team's designated office. The offices were just large enough to comfortably accommodate three workstations with a reasonable amount of personal space and a round table for small group discussions. Each teacher had his or her own workstation and a hard copy of the thesaurus. Workstations were equipped with microphones and recording software, and teachers activated their microphones at the beginning of each work session so that spontaneous utterances, conversations, and small group discussions could be recorded and transcribed. Each work session was attended by one of the workshop staff (staff members were paired with the same team for the workshop's duration), whose duties included helping the teachers as needed (assistance with workshop system, workshop logistics, arranging technical support, etc.) and keeping field notes for the research study. Periodically, workshop instructors would visit a team's office for status updates, to offer help, or to lead a small group discussion. On Wednesday, Thursday, and Friday, each teacher took a 30-45 minute break from a work session to participate in an interview (see Section 3.4 for more information).

The workshop and its work sessions were intentionally designed to allow teachers to decide whether to work on their lesson plans independently or build something collaboratively. The outcome in each team's room was that each teacher worked on his or her own lesson plans during work sessions, but the informal and collegial atmosphere enabled helping interactions, spontaneous discussions of teaching and/or the Holocaust, and off-topic social conversations.

3.2.2.**3 Workshop as Study Environment**

The workshop provided a valuable opportunity to observe teachers' content selection. However, some characteristics of the workshop environment changed the nature of participants' work during observation. Three of these characteristics are described below: task immersion, location, and collaboration.

3.2.2.3.**1 Task Immersion**

For five days, from 9:00 a.m. until 5:00 p.m., the teachers were immersed in the workshop environment, where all of their activities involved writing lesson plans, searching the VHA, or discussing these activities and Holocaust-related education. Even during their lunch breaks, the teachers discussed their students, their schools, their teaching, and the workshop itself. None of their usual workday responsibilities were demanding attention, so they could focus on the workshop tasks with a relatively generous time line and with little interruption.

Under normal circumstances, teachers would be working on lesson plans and searching for content in their schools or homes, where any number of other tasks and distractions would draw focus away from the lesson plan. One teacher might spend an afternoon browsing the Internet for content for lesson plans on multiple topics. Another teacher might incrementally enhance lesson plans over time, whenever a new idea or resource comes up.

The narrow workshop environment was both beneficial and detrimental for observing teachers' content selection. The workshop's schedule and format encouraged teachers to keep working and minimized opportunities for multitasking and

procrastinating. This likely resulted in more information seeking interactions being concentrated into the observation period than would have happened during in-school observation. This increase in the density of relevant data came at the cost of gathering observations of teachers' content selection under abnormal conditions. The intensity of focus – whether it improved or degraded performance quality – may have changed how teachers progressed through the selection of content.

3.2.2.3.**2 Location**

When teachers work in their classrooms, they have convenient and timely access to many of the materials that could potentially help with lesson planning and content selection. They might have binders with lesson plans, notes, worksheets, and resources. They have convenient access to the Internet. Colleagues and the media center are a short walk away. None of these things were true at the workshop. Teachers were working in an unfamiliar and relatively spartan physical environment. Their personal resources were unavailable, and even Internet access required moving to another workstation, since security considerations prohibited Internet access on VHA workstations. This aspect of the environment presented unfortunate consequences for the observation of content selection. It would likely have been valuable to find out how teachers interacted with other resources during content selection from a resource like the VHA.

3.2.2.3.**3 Workshop Colleagues**

Another workshop characteristic that would be uncommon for teachers was the close proximity and collaborative atmosphere within which teachers worked for the week.

During one of the first workshop sessions, the teachers watched a SFI video production that compiled a series of testimony passages that were especially human, profound, or insightful. All of the teachers were moved by this video, some to the point of tears. After the video, there was a group discussion about reactions to the video, the teachers' hopes for the workshop, and their personal feelings about tolerance in the classroom. This discussion established an atmosphere of trust, helping, and open communication among the teachers that might not normally be established so quickly at a professional development workshop or even among more than a few teachers in a school. Every day closed with a forty minute period of open discussion which strengthened these interpersonal connections. There was a sense among all of the workshop participants – staff and teachers – that we were in this together, that the teachers were up to important work and the staff was there to support them.

When teachers went to work in their designated offices, they shared space with their team mates. This physical arrangement was uncharacteristic of the way teachers would usually work, which probably affected lesson planning and content selection. Since everyone was working with the same system and knew about each other's topics from the group discussions, it was natural for the teachers to notify each other when they came across potentially useful segments. Furthermore, the presence of a colleague in the room gave each teacher the opportunity to verbally process emotional reactions to testimony, newly learned information, or nascent teaching ideas. Teachers described these in-the-moment opportunities for discussion as helpful and stimulating. From the researcher's perspective, they also provided a valuable source of data about teachers' thought processes during content selection. But the fact remains that content selection

might work differently if teachers had been working alone or among their regular colleagues.

3.3 Descriptions of Participants

This section describes each team and its participants. Team descriptions include a summary of the county curricula for English and social studies. Teacher descriptions include a summary of the teacher's professional background, courses and grade levels taught, self-described work style and teaching philosophy, and workshop goals, tasks, and behaviors. Since the study was based in Maryland, the state's requirements for English and social studies are described below in order to frame the discussions of county-level requirements included in the team descriptions. The Maryland high school curriculum includes four course levels of English, which are numbered and sequenced by grade. These courses include content from language arts (listening, speaking, reading, and writing) (Wood, 2003) and English literature.

All of the teachers except for Mary came from public schools in the state of Maryland. At the time of the study in 2006, the Maryland State Department of Education was using standardized assessments to evaluate student learning in English. The four areas covered in the state's Core Learning Goals, were:

1. Comprehension and interpretation,

2. Making connections and evaluation,

3. Composing,

4. Language use and conventions (Maryland State Department of Education, 2004).

The Core Learning Goals are the top-level unit for organizing individual standards (i.e., four goals frame the entire high school English curriculum). Within each goal, expectations, indicators of learning, and assessment limits further specify the material that teachers should cover in order to prepare students for their assessments and achieve the learning goals. Although the state assessment is administered in tenth grade, the Core Learning Goals contain standards for the entire high school English curriculum (Maryland State Department of Education, 2006b).

None of the social studies courses taught by workshop teachers were state assessed, but the Voluntary State Curriculum (Maryland State Department of Education, 2006b) specified standards for United States History. The United States History curriculum fell under one broad content standard, "Students will examine significant ideas, beliefs and themes; organize patterns and events; analyze how individuals and societies have changed over time in Maryland and the United States" (Maryland State Department of Education, 2006b, p. 2). The curriculum is further divided into six units, each of which includes indicators and objectives. The six units are:

1. Reconstruction and an expanding America (Reconstruction – 1897),

2. Challenges of a new century (1898 – 1929),

3. The United States in a time of crisis (1929 – 1945),

4. Challenges of the post-war world (1946 – 1968),

5. Democracy challenged (1968 – 1980),

6. America impacts the world (1981 – Present) (Maryland State Department of Education, 2006b, p. 1).

3.3.1 Blue County

The Blue County team consisted of two English teachers (Cory and Ray) and one social studies teacher (Alan). Blue County's high school English language arts curriculum integrated aspects of communication by guiding students to learn of the dynamic relationships between process (reading, writing, speaking, listening, viewing) and content (literature and language) (Blue County Public Schools, 2004). This framework organized and incorporated the Maryland standards for English and added more standards and details at individual grade levels.

According to Blue County's Social Studies Curriculum Framework, "The goal of Pre-K-12 social studies is to help students become effective citizens" (Blue County Public Schools, 2001). The standards used to help students achieve the objectives of the county's social studies program were detailed in the curricula of the required courses.

Of the three teams, the Blue County team had the liveliest environment in terms of collaborating, helping, and socializing. Alan, Cory, and Ray talked about their lesson plans, their searches, the Holocaust, their schools, and students. They frequently shared reactions to segments they had just watched, and they each became familiar with each other's lesson plans and search goals.

Alan

Background

Before earning a master's degree in education, Alan's background included undergraduate and professional work in political science. His graduate work was in secondary social studies education. When he arrived at the workshop, Alan had one year of teaching experience, where he taught United States History (9th grade), Government (Advanced Placement and on-level, 10th grade), and Peace Studies (11th and 12th grades).

Teaching Practice

During the workshop, Alan concentrated his efforts on an elective course, Peace Studies, for which there was no county curriculum. In his pre-workshop interview, Alan stated that his teaching approach is to try to find overarching themes for each of his courses that will help students build connections among topics and with their own lives and spheres of knowledge. His teaching practice aimed for the ideal of laying groundwork that would help students engage and think critically about local and global issues by incorporating understanding of history and government.

> *I was trying to get across, this is a decision you'll be making at some point in your life. ... You are going to vote for somebody that's going to be supporting this type of war or not. And so, this is a practical thing for you to go through, and we're going to use this as kind of like a case study.*

As a new teacher, Alan found it necessary to concentrate on building his knowledge and efficacy for the more foundational aspects of his work, such as building relationships with students and within his department, learning school policies and procedures, and increasing familiarity with standards, curricula, and assessments. He knew that with patience and experience, he would gradually build his own collection of lessons, resources, and techniques.

Workshop

Alan's intention for the workshop was to find segments about tolerance and resistance, which are both addressed in his Peace Studies course. Throughout the workshop, Alan worked with focus and efficiency. He spent the first three days searching and watching testimonies on various resistance-related topics and writing his lesson plan. From watching the testimonies and discussing ideas with teammate Ray, Alan was inspired to create a "Message to the Future" lesson plan. This lesson would be a wrap-up activity for the Peace Studies course, and the objective was to encourage students to think about their world and take action to promote justice.

Cory

Background

Cory had twelve years of experience as an English teacher in a variety of environments. With degrees in English and Education Administration, Cory had taught in a large Midwestern city, a relatively rural Maryland town, and a thriving suburban community (his current school). Cory taught English 11 to honors and on-level students in addition to coaching tennis and advising the Poetry Club. According to Blue County's description of English 11,

> Students develop critical reasoning skills and strategies for close reading of texts from a variety of genres and time periods during two thematic units. Students complete mandatory common tasks that focus primarily on the writing process but include development of other language skills (Blue County Public Schools, 2006).

Teaching Practice

Cory said he liked to vary his literary selections from year to year. His approach to instruction emphasized individualism (both his and his students') and accommodation of different learning styles. From his years of teaching, Cory felt like he had a good collection of materials and ideas that were interesting and effective. Cory declared himself passionate about facilitating open discussions of diversity and tolerance both in and out of the classroom. He also used dystopian literature to encourage students to think critically about the consequences of living in a materialistic, consumerist society.

Workshop

Cory knew when he applied to the workshop that he wanted to find testimony that he could tie into one of his favorite novels to teach, *The Color of Water*, by James McBride. The novel has a Jewish protagonist and deals with themes of racial and cultural tension. Cory worked on his lesson plan for *The Color of Water* until lunch time on Wednesday. He searched for and viewed segments that dealt with themes such as religious identity, interfaith marriage, and racial discrimination. While viewing these segments, Cory heard a survivor's discussion of Joseph Mengele. When Cory finished with his first lesson plan, he watched more segments about Mengele and got the idea for two new lesson plans for his unit on *Brave New World* by Aldous Huxley. Those lesson plans covered mind control and the ethics of cloning.

Ray

Background

Ray was a rising first-year teacher who had completed a master's degree in education (curriculum and instruction) immediately following his undergraduate degree in English. In his new school, he would be teaching Honors English 9 and Honors English 12. For his ninth grade class, Ray planned to use the pacing guide, which itemized for each thematic unit goals, objectives, rationales, and activities to guide day-to-day progress toward the Core Learning Goals. Ray felt more comfortable planning for his twelfth grade class without the use of a guide. He described the ninth grade curriculum as much more regimented than the twelfth grade curriculum, since ninth graders are being prepared for the statewide assessment exam. From his student teaching experience, Ray had found that he preferred loose, informal lesson planning over detailed, formal lesson planning.

> I could in the shower in the morning say, "This is what I'm doing." … I wouldn't need to write it down. It was always helpful when I did [write full lesson plans], but it was just a lot more arduous. I'd be up until 11:30 at night figuring, "What do I do with these last two minutes?" … It was much easier to just go, "These are the things I want to cover," write them on a post-it, stick it on my podium, and run with it.

Teaching Practice

Another characteristic of Ray's teaching style was the importance of interpersonal relationships. Like his workshop colleagues, Ray felt his most effective teaching strategy involved presenting course content in ways that were relevant to students' lives. Beyond this, Ray believed that the relationship between the teacher and his students exceeded the importance of the content in determining student success. "If they don't like you, they're not going to try. That's what my kids taught me."

Workshop

Ray had professional and personal motives for participating in the workshop. First, he was eager to interact with other teachers and share techniques. Second, Ray was an observant Jew who had several family members (including three grandparents) who were Holocaust survivors and victims. Ray was very knowledgeable about the Holocaust and he wanted to use the opportunity to access the VHA to witness the perspectives of its contributors. Ray did not come to the workshop with any particular lesson, theme, or literature in mind. For the first two days of the workshop, Ray experimented with the system, watching segments on topics of his own interest. He also tried to be helpful to his teammates, helping them construct searches and understand Holocaust-related experiences and perspectives that might connect with their lesson plans. After consulting a workshop instructor on Tuesday afternoon, Ray identified a lesson plan topic (anti-Semitism in "The Prioress's Tale" from Chaucer's Canterbury Tales) and spent

Wednesday and part of Thursday finding segments and writing the lesson plan. When he finished, he went back to searching on topics of personal interest. He was active and enthusiastic in talking with his workshop colleagues, but their relative amount of focus on completing their own lesson plans left them with little time for unscheduled, informal interactions.

3.3.2 Green County

The Green County team consisted of Lily and Wendy, who taught social studies and English, respectively. Green County's "English 9 Essential Curriculum: The World of Discourse" (Green County, n.d.) organized sixteen standards into four units. The standards were imported from the goals, indicators, and assessment limits in the state curriculum. The four units were:

1. Writers record experience,

2. Writers invent character and point of view,

3. Writers choose language,

4. Writers create meaning: Theme (Green County, n.d.).

Green County's social studies program aimed to guide students to a sense of civic efficacy by developing a sense of civic responsibility, perspectives on life experiences and the human condition, and understanding of the world's people, places, and historical events. The "United States History, Grade 9 Essential Curriculum" (Green County, 2006) was written at a significantly higher level of granularity than the English curriculum, outlining over 300 concepts in a four-level hierarchy. The top level of the hierarchy consisted of the four historical periods that defined the chronological and organizational units for the course:

1. Economic and geographic expansion and the social and political response, 1877 – 1920;

2. The Great War and a new economic order, 1912 – 1932;

3. The expanding power of the United States government at home and abroad, 1932 – 1953;

4. The transformation of modern America, 1950s – Present (Green County, 2006).

Orthogonal to the topical subdivisions within each unit were the county's goals and objectives for each unit. Each unit included 2-3 goals (e.g., "Students will demonstrate the ability to understand the causes, events, and consequences of United States participation in World War II."), and each goal was subsumed by 7 – 10 objectives (e.g., "The student will be able to research the Holocaust experience and other violations of human rights during World War II.") (Green County, 2006, p. 16).

Even though Lily's and Wendy's schools were in the same district, their neighborhoods and student populations were very different. According to Lily and Wendy (speaking independently of each other), Lily's school was considered the county's "crown jewel" in terms of test scores and facilities. Wendy described her school as situated in a community that was less affluent, highly diverse, and immigrant-rich. Lily's community was relatively affluent and racially homogeneous. In their interactions with each other, these two teachers were professional and courteous, but they did not help each other or collaborate on searches and lesson plans. During their work sessions, there were occasional periods of conversation, but they never "clicked" interpersonally. Wendy cited their distance as rooted in the differences in their schools and communities, while Lily

believed there was no room for collaboration between English teachers and social studies

teachers in a standardized curriculum.

Lily

Background

After receiving her bachelor's degree in Government and Politics, Lily spent some years at home before going to work in various roles of teacher support (i.e., assistant, secretary, substitute). While working these jobs, Lily earned a master's degree in Instructional System Design, after which she began teaching full time at her current school. She had five years of full-time teaching experience plus six year of experience in support positions.

Teaching Practice

Lily said that when she was creating and revising her lesson plans, she liked to browse the Internet and instructional catalogs for lesson plans and resources from which she can berry-pick ideas. Lily's instruction tended to be highly interactive, with a heavy portion of hands-on activities, stations, projects, and group work. She kept a large collection of resources available in her classroom so that students could do their own research during activities and projects. When selecting materials and constructing learning experiences, Lily is highly conscientious about students' interest levels and attention spans. She looks for materials that are short and concise, and she tries to blend activities in such a way that students feel like they are doing something new with each activity.

Workshop

Lily's workshop goals were moderately specific. She did not have a specific lesson plan in mind that she wanted to create or modify, but she knew she wanted to integrate her workshop products with her existing lessons and resources pertaining to the Holocaust and tolerance. During one of the workshop's first instructional sessions, the teachers watched a SFI video production that portrayed various instructional uses of VHA testimony. In this video, Lily saw students producing videos about their attitudes and experiences with diversity and discrimination, which gave her the idea to have students draw from their own experiences to connect with historical concepts. She remembered that the Holocaust Museum had photographs of Holocaust survivors' pre-war, everyday life activities. From there, she decided to construct a lesson plan around the idea of students connecting their own experiences to the experiences depicted in the Holocaust Museum photographs. During her work on this lesson plan, which continued until lunch time on Wednesday, Lily found the inspiration for her second workshop lesson plan in a map (from her own materials) of concentration camps throughout Europe. Lily stayed focused on her tasks throughout the workshop and tended to work independently, rather than seeking interaction with other teachers or workshop instructors.

Wendy

Background

Wendy came to the workshop with fifteen years' experience as an English teacher. In addition to teaching English 9 (honors and on-level), Wendy was active at the county level as a curriculum writer and staff development instructor. She had previously led a staff development workshop where she used Holocaust literature as "a focal point to highlight skill development activities."

Teaching Practice

When planning and delivering instruction, state and county standards and assessments are at the forefront of Wendy's mind. For every lesson plan and activity that she mentioned, whether workshop-related or not, Wendy knew exactly which standards were relevant. Beyond meeting the learning goals and preparing for state assessments, Wendy wanted her students to increase sensitivity to the human condition and awareness of the socio-political contexts of literature. She tried to vary media formats and lesson types enough to accommodate different learning styles, and she provided opportunities for students to explore and express themselves creatively by allowing students to submit responses to literature by composing songs, poems, stories, visual art, or more traditional narratives.

Workshop

Wendy's workshop goals were to explore interdisciplinary approaches to literature, to obtain materials for her county-level staff development activities, and to enhance the presence of non-print media in her existing unit on Holocaust literature. Wendy's first workshop lesson plan, "Oral Histories and the Holocaust," combined elements from three spheres:

- Instructional techniques reviewed in Monday's session on Holocaust education,
- Learning objectives that aligned with several relevant standards (identify point of view, respond to non-print text, explain authors' personal voice),
- Experiences and themes that connect with *Night* by Elie Wiesel.

Wendy's workflow at the workshop was quite different from her colleagues'. She created five lesson plans (six teachers created one or two, and one teacher created three), each of which contained all or most of the major lesson plan elements (overview, objectives, vocabulary terms, rationale, etc.) and itemized procedures. When asked about her high volume of output, she stated that she wanted to be sure she met or exceeded the expectations of her colleagues and administrators in the school and county.

3.3.**3 Yellow County**

The members of the Yellow County team fit into the public school environment differently than their workshop colleagues did. Carl and Jimmy, who were both social studies teachers, taught Advanced Placement (AP) courses, so their curricula were shaped by the guidelines of the College Board. While Carl and Jimmy taught other non-AP courses, they both used their workshop time to develop lesson plans for the AP students. Student achievement would be tested at the end of the year when students took the nationwide AP exams for their courses. State and local standards would not be on their minds as much as they would be for teachers who planned for courses with state-level standards. The College Board guidelines for teaching AP courses would act as the standards that Carl and Jimmy would need to meet through their curricula, although the nature of the relationship between guidelines and instruction is different from the relationship between standards and instruction. Specifically, teachers are expected to design instruction that will help students achieve each objective written into the standards. The AP guidelines are not specifically required. Rather, they guide teachers' focus to topics and themes that are more likely to appear on the AP exam. The guidelines specifically state that teachers can embellish or modify the topics outlined in the guidelines.

Mary's situation was different from other workshop teachers in that she was not affiliated with any one particular school or grade level. Mary freelanced for a school district that used consultants to teach particular course units as needed. She was never asked by the school district to align her instruction with district standards, but she did

make a practice of submitting her lesson plans to the school principal in advance of a placement. Mary never heard any feedback from principals about her lesson plans.

The Yellow Team's had a collegial working relationship. Carl and Jimmy were friends and colleagues from the same school, where they frequently discussed their mutual enthusiasm for history (sharing books and videos) and for teaching (sharing ideas, creating cross-course connections). They had previously collaborated to develop a comprehensive A.P. History curriculum for their school, which earned them a leadership and teamwork award from their principal. Because of their preexisting relationship, Carl and Jimmy naturally shared ideas and information during the workshop. They welcomed Mary into their interactions, and she was eager to learn from them about the historical aspects of the Holocaust and the art and science of teaching. All three teachers had some degree of familiarity with each other's search goals, and throughout one would notify the other whenever she or he came across a segment that might be useful.

Carl

Background

After earning bachelor's degrees in chemistry and English, Carl worked in health care until he went back to school and earned two master's degrees sequentially: history and teaching. Carl had twelve years teaching experience in several Maryland high schools, and he had been at his current school for two years. At his current school, Carl taught A.P European History (which he worked on at the workshop), World Civilizations, and United States History.

Teaching Practice

Carl's approach to writing or revising lesson plans for his A.P. course was to periodically review the prior years' tests that were released by the College Board so that he could stay abreast of the kinds of questions and topics on the A.P. exam. He would also keep notes about students' reactions to instruction and use the summer break to incorporate those notes into the next year's lesson. Carl made a point to tailor instruction to the needs and capabilities of the students in a class. For example, he would be more repetitive in his delivery for lower level students who achieved more learning objectives when they read about, heard, and wrote about course concepts. Carl found A.P. students to get more from reading primary sources than on-level students. Carl was visibly knowledgeable and enthusiastic about both history and pedagogy. He embraced the challenge of reaching students in each of his courses, and he was open to opportunities for innovative teaching, even though he felt like standardized education restricted these opportunities.

Workshop

Carl arrived at the workshop knowing precisely what he wanted to work on. He planned to search for segments that he could incorporate into his teaching of different events and aspects of the Holocaust. These lessons were chronologically arranged in his mind, and his searches reflected his thinking: organized, step-wise, and chronological. The only queries that deviated from his stated workshop goals were two searches for people he had known who survived the Holocaust. He said that he was fascinated with the interviewees' stories and wanted to listen on and on, but he made conscious efforts to redirect his attention and time to finding segments that would help his students.

Jimmy

Background

Jimmy had a bachelor's degree in history and four years of experience teaching social studies to middle school (one year) and high school students. He had been at his current school for three years, where he had taught United States history and European history to students at all levels.

Teaching Practice

Jimmy had an energetic disposition, which he channeled into learning about history, using technology, and working with students. Jimmy's activities extended beyond his classroom. He collaborated with middle school and high school teachers to develop curriculum tools and teaching approaches that would help students achieve a more cohesive progression of learning as they advanced from grade to grade. Additionally, Jimmy cooperated with a language arts teacher to advise students' after-school production of a school newspaper and volunteered as a community baseball coach. In his teaching, Jimmy liked to use technology and learning games to keep students active and engaged. He had an integrative understanding of history and felt like textbooks and standardized curricula failed to describe the connections among different historical trends and periods. One of Jimmy's defining characteristics as a teacher was his ambition to identify and fill these gaps via content selection, instructional delivery, and activities for students.

Workshop

Jimmy came to the workshop with two very specific goals in mind for searching the VHA. He wanted to find segments about Holocaust survivors' first impressions of Americans after liberation, and he wanted to learn how survivors reconstructed their lives after the war. At the workshop, Jimmy found testimony about the first topic. From his interactions with the system and thesaurus, Jimmy got the idea to construct a lesson plan that introduced ten lesser-known Holocaust topics. He worked on this plan over the course of the workshop.

Mary

Background

Mary was an active and versatile freelance writer and teacher. She had a bachelor's degree in English plus two associate's degrees (business studies and computer science) and four certificates in teaching and writing. Beyond her degrees and certificates, Mary frequently participated in professional development activities that related both to writing and teaching.

Teaching Practice

Mary delivered creative writing instruction (general and genre-specific) to students of all ages and in a variety of settings (nonprofit artistic organizations, community organizations, universities, community colleges, and K-12). Among her various assignments, Mary's passion was for working with urban youth, promoting creative expression as a gateway for broader learning experiences. Mary was passionate about multiculturalism and tolerance, and when she discovered the power of using the history, art, and literature of the Holocaust as a mechanism for promoting understanding and tolerance, Holocaust education became an integral aspect of her approach to teaching creative writing.

Workshop

Being that Mary's resume listed over twenty freelance assignments in the four years prior to the workshop, it was not surprising to find that her approach to lesson planning and content selection at the workshop was disjointed and opportunistic. As a workshop applicant, Mary had been eager and persistent. Her application was initially rejected because of her atypical teaching assignment, but over a series of emails she made a convincing case for her potential contributions to and benefits from the workshop. When she arrived at the workshop, she did not know exactly what she wanted to work on. The professional development content, collaborative environment, and VHA access were what motivated Mary to apply. At the workshop, Mary's dilemma was that she had more interests and ideas than she could pursue during the limited time frame.

Table 3.3. Summary of teacher information.

County	Teacher	Years of teaching experience	Incoming workshop goal specificity	Courses taught (with grade level)	Lesson plans created
Blue	Alan	1	Specific topics	U.S. history (9) Government (10) **Peace studies** (11 – 12)	• Resistance during the Holocaust • Message to the future
	Cory	12	Specific topics	**English** (11)	• Past experiences and cultural dissonance • Who is in control of your mind? • Ethical issues surrounding cloning
	Ray	0	No topics	**English** (9) English (12)	• Chaucer today
Green	Lily	5	Rough ideas	**U.S. history** (9)	• Voices in history • Forgotten camps
	Wendy	15	Specific standards	**English** (9)	• Oral histories and the Holocaust • Filial piety • Triumph of the human spirit • Marginalization • Revisionism
Yellow	Carl	11	Specific topics	U.S. history (9) **A.P European history** (10 – 12) World civilizations (10)	• Development of the Holocaust
	Jimmy	4	Specific topics	**A.P. U.S. History** (11 – 12)	• U.S. foreign policy towards the Holocaust
	Mary	8	No topics	**Creative writing** (6 – 12)	• Music and writing • Propaganda

Note: Bolded course titles were worked on at the workshop.

3.4 Data Collection

In the weeks before the workshop, the researcher met individually with each teacher for a

pre-workshop interview, which served two purposes. First, teachers could preview the

workshop software system and prepare themselves for the workshop with a preliminary

understanding of the system. The second purpose of the pre-workshop interview was to ask each teacher to describe the environment, strategies, and workflow of creating lesson plans and selecting content (See Appendix C: Phase One Interview Protocol). These data provided perspective on some of the goals and constraints in each teacher's working life, including several components of the information need context depicted in the conceptual framework. The pre-interview opened with each teacher's review and signature of the IRB-approved informed consent form.

The workshop itself provided an opportunity to capture discussions, behaviors, and work products of teachers in the process of creating lesson plans and searching for specific instructional materials (namely, testimonies of Holocaust survivors). Teachers were assigned to teams that worked in separate rooms for their collaboration and searching activities. Workshop instructors and support staff were trained as observers (See Appendix D: Observer Training Documents) and noted critical incidents, frequent questions and themes, and other behaviors.

One of the observers was a second-year student in the College of Information Studies' Master's program in library science. This observer was specializing in school library media and hence had an orientation to the objectives and environment of teachers and the lesson planning process. The second observer was a PhD candidate in history who had specialized knowledge of Jewish history. Additionally, the second observer had worked in another role within the MALACH team (relevance assessor for test collection), equipping him with a robust understanding of the collection and the study context. The observers were trained in the primary concepts of the proposed research; they spoke with the researcher once or twice each day to deliver their notes, observations, and questions.

During Phase Two, the following data were collected (See Appendix E: workshop Schedule):

– **Interviews** – Each participant was interviewed three times during the week. The first two interviews began with a stimulated-recall walkthrough during which the participant looked at a log of his or her searches and described strategies and rationales behind individual searches (Appendix F: Protocol for Interviews 1& 2). The interviewer elicited critical incidents from each teacher (Flanagan, 1954) and also asked each about critical incidents that were identified by workshop observers and selected by the researcher. The third interview was an exit interview on the last day of the workshop (Appendix G: Exit Interview Protocol).

Two workshop instructors were trained alongside the workshop observers to prepare them to perform the interviews, using the interview instrument created by the researcher. One of these interviewers was the chair of the dissertation committee, who was also senior personnel on the MALACH project and deeply familiar with the current study and the context within which it occurs. The second interviewer was an Access Specialist from the USC Shoah Foundation Institute, the organization that collected and shared Holocaust survivor testimonies and metadata with the MALACH project. The researcher also conducted interviews and team observations.

– **Group discussions and Work sessions** – Lesson planning and discussion took place during scheduled sessions throughout the week of the workshop. These sessions were recorded and transcribed for analysis. Some of these discussions occurred during structured activities whose purpose was to instruct the teachers or

to inspire and facilitate collaborative conversations among teachers (especially within their teams). Recordings were also captured of teachers' spontaneous conversations during periods of the workshop that were assigned to unstructured work on lesson plans.

- **Segment relevance judgments** – As participants viewed segments of testimonies from the archive, they were encouraged to use an interface feature that allows descriptive appraisal of the segment in terms of its acceptability (See Figure 3.5, above).

- **System Transaction Logs** – The workshop's IR system allowed for logging of participants' interactions with the system. These log files contained time-stamped entries for system transactions, allowing the researcher to reconstruct each teacher's sequence of activities, including:

    - actions on the lesson plans,

    - queries submitted,

    - testimony segments selected for metadata review,

    - testimony segments selected for viewing,

    - duration of testimony segment views, and

    - selection of testimony segments for inclusion in a lesson plan.

- **Free-writes** – Each day, near the end of the day, participants wrote for ten minutes about their impressions of the day's activities (Appendix H: Free Write Prompt). Workshop organizers (including the researcher) reviewed and discussed the free-writes each evening to look for critical incidents and feedback items that warranted restructuring or refinement of planned workshop activities.

- **Lesson plans** – Lesson plans that participants created using the workshop system template were saved in their final form for analysis.

3.5 Data Analysis

Methods of analysis used in this study included coding, memo-writing, matrix analysis, and concept mapping (Miles & Huberman, 1994; Maxwell, 1996; Strauss & Corbin, 1998). The conceptual framework – which provided a set of tools in the form of concepts that describe salient and meaningful aspects of information need context, information search, and relevance criteria – informed the early coding process by yielding "start codes" (Miles & Huberman, 1994). The coding scheme shown in Appendix I is arranged according to the three major components of the conceptual framework.

Qualitative data analysis is both inductive and deductive. The conceptual framework provided the impetus for deductive reasoning, as the study's higher-level concepts provided the lens through which the researcher read the data. But the data introduced specific examples, layers, and interactions among these higher concepts, and these were identified and inductively coded. The new emergent codes iteratively enhanced the conceptual framework, which was seen as a "living document," changing in ways that reflected the experiences revealed by the study's participants.

3.5.1 Coding Process

The tool for analyzing and organizing data was NVivo, a specialized software product for qualitative data analysis. With NVivo, researchers can create and import sources (such as interview transcripts) and nodes (such as coding concepts). The primary

function of NVivo is to allow researchers to apply nodes to sources; this is the coding process. Additionally, NVivo has mechanisms that allow data to be organized, queried, and analyzed along different dimensions, including:

- Type of source (interview, free write, lesson plan, researcher memo),

- Node,

- Person (or team),

- Attributes (gender, subject taught, years of experience).

Nodes can be hierarchically arranged, which allows for queries to apply to the selected node or the node and all of its descendants.

Before coding began, the NVivo project file was constructed. The first step involved importing interview transcripts, work session transcripts, segment assessments, free writes, and lesson plans. Next, the conceptual framework was converted into a node hierarchy. An orthogonal node list was created of interview questions, and all of the interviews were coded to capture each person's answer to each interview question.

Starting with the preliminary coding scheme as a framework, passages of text were highlighted and coded. Each passage was coded at the finest level of detail applicable to that passage; when no nodes existed to apply to an interesting passage, a new node or nodes would be created. Newly created nodes would be temporarily stored as free nodes, with a note as to the anticipated placement of the node within the coding scheme. Periodically, the researcher would suspend the coding process long enough to incorporate free nodes into their proper locations in the coding scheme. This "insertion" procedure would occur whenever the cognitive strain of too many free nodes became unwieldy. As the first pass through coding neared the halfway point, insertion would be

required frequently, as each transcript presented up to a dozen new nodes. Nearing the end of the first coding pass, insertion was needed with decreasing frequency because new codes became rare as saturation was approached.

In addition to merging free nodes into the coding hierarchy, the insertion procedure also provided an opportunity to review the other nodes in the coding scheme. With nearly 300 nodes at the height of coding, there were inevitable redundancies when two or three nodes had been created for identical or highly similar concepts. Whenever these were identified, they would be merged together with a note inserted into the node description to document the merger. When necessary, new "container nodes" would be created and placed appropriately in the coding scheme to group conceptually similar leaf nodes.

Upon completion of the first pass of coding through all interviews and group discussions, the researcher looked in previously coded sources for newly-emerged concepts by using text searches and interview questions as landmarks. At this point, a comprehensive review of the coding scheme and memos-to-date was used to re-orient the data within the bigger picture of the conceptual framework and research questions. Different arrangements of the coding scheme were explored by looking for alternative groupings of concepts and evaluating each concept's contribution to answering the research questions. It was discovered that many of the nodes, while interesting, did not pertain to the research questions. The majority of these extraneous nodes were those that described lesson planning and teaching in a way that had no relationship with content selection. During this review period, preliminary findings began to emerge, which were recorded in memos and outlines.

Interviews and group discussions were coded first because they were expected to be the richest sources of data that would most effectively depict the nuances of the content selection process. This expectation derived from the close coupling between the interview protocols and the conceptual framework and from the researcher's observation of the nature of teachers' discussions with each other during the workshop. By coding the most dense and nuanced data first, the researcher expected to begin coding the remaining data sources with a rich and data-driven coding scheme – looking for examples that confirmed, disputed, or elaborated on the concepts and relationships in the coding scheme.

During the next phase of analysis, secondary data sources were used to confirm, alter, or reject each of the preliminary findings that emerged from the coding review described in the previous section. The primary mechanisms used to investigate preliminary findings were the transaction logs and lesson plans. For each theme that suggested a study finding, the researcher would use transaction logs and (where relevant) lesson plans to construct a representation of the behaviors that embodied any notions that were reported during interviews or teacher-to-teacher conversations. Spreadsheets were created of each teacher's system transactions, with each row in the spreadsheet representing a single system interaction and each column represented a data point from the transaction log database. This arrangement allowed for a single spreadsheet to be sorted and re-sorted to identify and reconstruct system transactions that related to preliminary findings.

For example, in her interviews and group discussions, Mary said that she felt overwhelmed and disorganized because of the volume of new ideas that were coming to

her. These feelings made it difficult for her to create and focus on a single lesson plan. In order to see how Mary's focus played out in her system transactions, her spreadsheet was sorted to present a chronological list of each segment that was added to a lesson plan. From this presentation, a matrix was constructed that showed, for each addition of a segment to a lesson plan, the date and time, a summary of the segment, the title of the lesson plan or module, and the query that retrieved the segment. From this presentation, it was clear that Mary was indeed jumping from module to module. Next, a similar matrix was constructed for every other teacher, and it was seen that Mary's module-hopping behavior was unique to her: other teachers tended to work on one lesson or module at a time, as was reflected in the chronology of query-selection-and-planning transactions. Appendix J shows the chronology of segment-adds that was constructed for each teacher. A formatted version of Mary's chronology is presented in Chapter 5, Table 5.3. Figure 3.8 is a screen capture of Mary's transaction log spreadsheet.

In Chapters 4 – 6, the products of many more such analyses are presented in the course of reporting the study's findings. This section has given an overview of how these analyses were constructed by incorporating and triangulating data from different sources.

Figure 3.8. Screen capture of Mary's transaction log spreadsheet.

3.6 Quality Assurance

3.6.1 Warrant and Weight

Two factors contributed to the selection and description of findings to include in the

findings, Chapters 4 – 6:

- Warrant – the *reason* a finding was interesting, and

- Weight – the *degree* to which a finding was interesting.

The following factors were used to establish warrant:

- **Relevance** – Findings were reported if they pertained directly or indirectly to the

  study's topic or research questions *and* had sufficient weight from other warrant

factors. Relevance was a necessary condition but not sufficient.

- **Concord** – Thoughts and behaviors that were observed or reported among all or almost all of the teachers were considered important.

- **Contrast** – If one or two teachers reported a notably different experience, behavior, or perspective on a finding than the rest of the group, the contrast was considered noteworthy.

- **Personally defining** – If a finding was especially frequent or important to a teacher to the extent that it characterized the teacher's content selection in some way, it was reported.

- **Stratification** – If a phenomenon occurred differently for one subgroup of teachers (e.g., team, discipline, years of experience) than another, the contrast was reported.

- **Description of a broader concept** – When a finding contributed to the overall picture of a study concept, it was reported. For example, *Learning about the information system* was a concept that was found to be part of the information seeking process. But teachers used a variety of approaches to this learning, so these approaches were listed as findings: exploratory search, trial and error, and system analysis.

Warrant was evaluated throughout the course of data analysis and writing of the findings. During the coding scheme review described in Section 3.5.1, warrant factors constituted the decision criteria that motivated changes to the coding scheme. At this stage, *Relevance* and *Description of a broader concept* had the greatest impact on the coding scheme. If a code (and the data associated with it) was found to lack *Relevance*, the code

would be eliminated. If it was found that the passages within a node could be subdivided into meaningful categories, that node would become a *Broader concept*, and child nodes would be added to accommodate the new categories. When codes and memos were being transformed into findings, all of the listed factors were used together to filter unwarranted results from the final report.

Weight was assigned by considering the number and intensity of warrant factors (listed above) and the potential for the finding to make a meaningful contribution to the literature, whether by novelty, extension, or contrast. Weight was not used to determine whether a finding should be reported; it was used to signify findings that would receive emphasis due to their noteworthiness.

3.6.2 Validity

Guba (1981), Guba & Lincoln (1982), and Lincoln & Guba (1985) describe dimensions that contribute to the trustworthiness of a study's procedures and findings. This study incorporated several techniques to establish trustworthiness on these dimensions, as described below.

3.6.2.1 Credibility

One mechanism for establishing credibility is triangulation (Guba & Lincoln, 1982; Morse & Richards, 2002). The researcher triangulated by using multiple sources of evidence in the form of multiple participants and multiple types of evidence for each participant (interviews, work session transcripts, free writes, lesson plans, transaction logs). The researcher also engaged in periodic sessions of peer debriefing, during which

methods of analysis, interpretations of data, and organization of the coding scheme were discussed. These discussions exposed the researcher to questions and alternative interpretations of phenomena as well as the opportunity for catharsis during the exchange of ideas among colleagues (Guba & Lincoln, 1985).

3.6.2.**2 Transferability**

Although the findings of qualitative studies are not generalizable, if the findings and the procedures by which they were reached are described in thorough detail, the reader can make a "reasoned judgment" about the degree to which the findings might be transferable to another situation (Guba & Lincoln, 1982; Creswell, 1998; Creswell & Miller, 2000). This dissertation provides such thick description by itemizing the conditions under which the study was conducted and evidence from which each finding was derived.

3.6.2.**3 Confirmability**

Results of this study have been made more confirmable via triangulation (to allow cross-checking across sources), thick description (to allow tacking of results to evidentiary data), and researcher reflections (memos that explore and explain the researcher's thought processes, impressions, and decisions throughout the study) (Guba & Lincoln, 1982; Creswell & Miller, 2000; Morse & Richards, 2002).

3.7 Limitations

As described in Section 3.2.2, there were several ways in which the workshop environment differed significantly enough from teachers' native work environments that the content selection process was likely affected. These differences include:

- Intense focus of teachers' time and concentration on using the workshop system to the exclusion of other tasks, which likely impacted cognitive processing (focused instead of multitasking), fatigue, and affect (due to the nature of the VHA);

- Removal of teachers from their usual work locations, which prevented them from using familiar equipment and resources;

- Nature of the interpersonal relationships and discussions among the teachers.

Each of these differences presents a limitation to the study in that the degree and manner of their effect on content selection is unknown.

Another of the study's limitations can be found in the duration of the observation. While the week-long observation of teachers' interactions with the workshop system was an excellent opportunity to see a process occur over time, there was no post-workshop follow-up to discover how teachers used their materials after the workshop. Because observation ceased when the workshop was over, there are no data to describe the teachers' post-implementation evaluation of their workshop product.

As with any qualitative study, the findings are not generalizable. The sample of participants was small and narrowly defined (English and social studies teachers from Maryland public high schools). Those teachers who participated in the study were self-selected, indicating that they are motivated to engage in professional development, they wanted to change something about their existing plans for instruction, and they had an

entire week of their summer available. Furthermore, one of the application requirements in the study's recruiting materials was that candidates apply in teams, preferably with at least one teacher and at least one media specialist. When no such teams applied, this restriction was relaxed, but there would be no way for a potential participant to know this unless she or he wrote to enquire. There was no way to catalog or control any confounding effects of self-selection, and it would be overreaching to extrapolate the findings of this study to describe anyone other than these teachers in this environment at that moment in time.

Chapter 4: Findings. Information need Context

> The investigator is staggered by the findings and conclusions
> … as they appear. Yet specialization becomes increasingly
> necessary for progress.
>
> *– Vannevar Bush, 1945*

4.0 Introduction to Findings: Chapters 4 - 6

As described in the conceptual framework (Chapter 2), this study treated content

selection as a particular type of information seeking, embedded in a rich contextual

background. The information seeking process is understood as consisting of three main

elements and the interactions among them:

1. The information need context,

2. The information search process, and

3. Relevance criteria.

With the conceptual framework as guide, the following six research questions were

formulated.

Characteristics of the Elements

1. What are the characteristics of the information need context that underlies teachers' content selection? ***Findings: Chapter 4***

2. What are the characteristics of the information search process when teachers seek lesson plan content? ***Findings: Chapter 5***

3. What relevance criteria do teachers use to search for and select lesson plan content? ***Findings: Chapter 6***

Interactions among the Elements

4. How do characteristics of the information need context interact with the information search process?

5. How do characteristics of the information need context interact with relevance criteria?

6. How are relevance criteria used and refined during the information search process?

Research Questions 1 – 3: Characteristics were explored in this study using the methodology described in Chapter 3, and detailed findings are presented in Chapters 4 – 6. Some findings of *Research Questions 4 – 6: Interactions* are touched upon throughout Chapters 4 – 6, since examining the relationships among elements of the framework was sometimes integral to characterizing those elements. Thorough exploration of *Research Questions 4 – 6: Interactions* is left for future work. Chapter 7 discusses the relationships

of these findings with the literature and explores some of their implications for theory, design, and practice.

4.0.1 Overview of Chapters 4–6: Discourse Style & Layout Conventions

The discourse style of the Findings chapters integrates reporting of empirical observations and analyses (i.e., the findings themselves) with background information and preliminary conclusions and implications. While other portions of this text include more exhaustive background (Chapter 2), discussion and implications (Chapter 7), the findings reported in Chapters 4 – 6 are better understood in the immediate company of the concepts that contextualize them and the implications that highlight their relevance to the research questions.

As described in Chapter 3, six factors were used to assess the warrant of incipient findings:

1. Relevance,
2. Concord,
3. Contrast,
4. Personally defining,
5. Stratification,
6. Description of broader concept.

All findings that held warrant from any of the six factors are included in the Findings chapters. An additional discriminatory screen, weight, was applied to warranted findings to identify which findings should receive emphasis due to their noteworthiness. Weight (also defined in Chapter 3) is the degree to which a finding is interesting by virtue of the intensity of warrant and/or the finding's potential contribution to the literature. Weighty findings are highlighted in a series of boxes throughout Chapters 4 – 6.

Overview Boxes

Overview

Subsections of Chapters 4 – 6 are introduced with boxes such as this one. The overview section of the box summarizes the subsection's findings.

Highlighted findings

- Findings in this list were deemed weighty via the analysis described above.
- Some sections had no weighty findings.

Case Boxes

Each finding's description includes one or more excerpts of data to support and exemplify. Some of these excerpts are extended descriptions of teachers' characteristics, actions, discussions, or work products. In order to set the text off from the discourse that describes the finding itself, extended examples are displayed in "Case boxes." This box is formatted to look like a case box.

Throughout the findings, each teacher's pseudonym is appended with a professional-biographical notation that summarizes that teacher's values on the three attributes that were found to be noteworthy variables.

- Subject taught and emphasis –

    o **E-LA** – English-Language Arts;

    o **E-Lit** – English-Literature;

    o **SS-H** – Social Studies-History;

    o **SS-PS** – Social Studies-Peace Studies (Alan only).

- Years of teaching experience;

- Goal orientation

    o **None** – Came to workshop with no unit, lesson plan, or topic in mind;

- o **Rough** – Came with one or more rough ideas (Lily only);

- o **Specific** – Came with one or more specific lessons or topics in mind.

Table 4.1, adapted from Table 3.3 in Chapter 3, summarizes teachers' professional-

biographical information and their workshop orientations.

Chapter 4: Findings. Information Need Context

Table 4.1. Summary professional-biographical information about teachers.

	Teacher & Name appendix	Years of teaching experience	Incoming workshop goal specificity	Courses taught (with grade level)	Emphasis of Workshop Lesson Plans (for Eng. teachers)	Lesson plans created
Blue County	Alan [SS-H/1/Specific]	1	Specific	U.S. history (9) Government (10) **Peace studies (11 – 12)**		• Resistance during the Holocaust • Message to the future
	Cory [E-Lit/12/Specific]	12	Specific	**English (11)**	Literature	• Past experiences and cultural dissonance • Who is in control of your mind? • Ethical issues surrounding cloning
	Ray [E-Lit/0/None]	0	None	**English (9)** English (12)	Literature	• Chaucer today
Green County	Lily [SS-H/5/Rough]	5	Rough	**U.S. history (9)**		• Voices in history • Forgotten camps
	Wendy [E-LA/15/Specific]	15	Specific	**English (9)**	Language Arts	• Oral histories and the Holocaust • Filial piety • Triumph of the human spirit • Marginalization • Revisionism
Yellow County	Carl [SS-H/11/Specific]	11	Specific	U.S. history (9) **A.P European history (10 – 12)** World civilizations (10)		• Development of the Holocaust
	Jimmy [SS-H/4/Specific]	4	Specific	**A.P. U.S. History (11 – 12)**		• U.S. foreign policy towards the Holocaust
	Mary [E-LA/8/None]	8	None	**Creative writing (6 – 12)**	Language Arts	• Music and writing • Propaganda

Note: Bolded course titles were worked on at the workshop.

The rationale for highlighting teachers' subject emphasis comes primarily from the distinction between English language arts [E-LA] and English literature [E-Lit]. The Maryland English curriculum blends the teaching of language arts (form: listening, speaking, reading, and writing) and literature (content). While all four of the English teachers included aspects of both in their lesson plans, it was clear that Mary's and Wendy's workshop lessons emphasized language arts more while Cory's and Ray's emphasized literature. Each of the four lesson plans that Cory and Ray worked on at the workshop revolved around a work of literature. Cory's lesson plans were for units on *The Color of Water* by James McBride and *Brave New World* by Aldous Huxley, while Ray's lesson plan was about one of Chaucer's *Canterbury Tales*. Each of these lesson plans addressed humanistic themes and contained communication-oriented objectives and activities, but the literary works were central. In contrast, Mary and Wendy both created lesson plans from more of a language arts perspective, where the lessons emphasized communication and literacy skills. For example, Wendy's lesson plan, "Filial Piety," was about comparing disparate embodiments of the same theme (e.g., as depicted in the Greuze painting versus survivor testimony). Mary's lesson plan, "Music and Writing," called for students to write reflections on the connection between personal biography and musical expression after listening to musical performances from a Holocaust survivor and a blues musician.

4.0.**2** **Introduction to Chapter 4: Findings. Information need Context**

The information need context shaped the criteria teachers used to construct searches and evaluate results. Furthermore, the information need context provided a framework for gathering and interpreting teachers' thoughts, feelings, and behaviors relative to their search processes.

The major headings of the *Context* section of the conceptual framework proved to be a useful and stable organizational tool for coding the narrative data that were primary sources of evidence for Context (including interviews, free writes, and teacher-to-teacher conversations during work sessions). Themes and impressions that were generated from the primary sources of evidence were verified against other sources, including transaction logs, lesson plans, and field notes. Layers of the context, presented in increasing order of granularity in Sections 4.1 – 4.5, are:

1. Environment,

2. Role,

3. Person,

4. Task,

5. Information source.

Many findings regarding the information need context do not neatly cross-reference into implications for the design of information retrieval systems. The picture of context is more like an impressionist mosaic than a high-resolution photograph, where each piece of the picture represents the nuance of such a complicated, social-cognitive-behavioral endeavor as information seeking.

4.1 Environment

This section describes the contribution of the environment to the overall information need context. The information need environment was conceived as a blend of structures that would describe a person's world and work in terms of:

(1) the **work domain** (standards, curricula, standardized assessments),

(2) the **human environment** within which the need occurred, and

(3) the **physical surroundings and facilities**.

The work domain was instantiated as the educational frameworks with which teachers worked: standards, curricula, and standardized assessments. These frameworks could have been:

- teacher-generated, such as a curriculum for a non-standardized and non-assessed elective course;

- school-mandated, such as day-by-day pacing guides;

- local- or state-mandated, such as standardized curricula, or

- any other of a number of possible constructions.

Whichever the case, educational frameworks encode, whether broadly or narrowly, the informational and educational experiences a teacher presents via lesson plans.

The human environments within which information needs occurred are constructed among individuals, organizations, communities, cultures, and societies. Teachers' content selection came under various forms of influence from both the local, in-school environment and the broader environments (communities, cultures, societies) within which teachers and students operated.

Finally, the physical environment refers to the physical characteristics of the work environment, with attention to those characteristics that influenced, facilitated, or impeded the task of content selection.

4.1.**1 Work Domain: Standards, Curricula, Standardized Assessments**

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Work domain

Overview

Standards, standardized curricula, and high-stakes assessments were found to be highly relevant to characterizing the environmental layer of the information need context. The standards to which the teachers were beholden shaped their information needs. By itemizing expected learning outcomes, the standards implied that lesson plan content that did not contribute to outcomes was extraneous. All of the teachers in this study indicated the impact of standards on their planning and teaching. Even Mary, who was rarely called upon to work with standards in her capacity as a consulting teacher, wanted to glean as much knowledge as she could of strategies and techniques for aligning lessons with standards.

Highlighted Findings

- All of the teachers incorporated awareness of standards into their decision making during lesson planning.
- Jimmy [SS-H/4/Specific], Ray [E-Lit/0/None], and Wendy [E-LA/15/None] associated specific content selection decisions with standards.
- Jimmy and Carl [H-SS/11/Specific] perceived gaps in their curricula and sought opportunities to fill those gaps.
- Carl, Cory [E-Lit/12/Specific], and Jimmy felt that the rigidity of standards impeded their liberty to customize or innovate, while Alan [SS-H/1/Specific] embraced the freedom of teaching a non-standardized course.
- Carl, Jimmy, Ray, and Wendy each mentioned specific aspects of high-stakes tests that influenced their lesson plans or content selections.

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The process of public education is guided by a combination of procedures, which are encoded in several information structures. Three types of these structures were especially relevant to understanding the procedural realm in which content selection occurred: standards, curricula, and standardized assessments. Of the three levels of

environment explored in this study, this one had the greatest direct impact on content

selection. Every teacher in the study discussed some aspect of these constructs. This

section defines the terms, *standards, curricula,* and *standardized assessments,* and

describes how they were implemented in the school districts represented in this study.

Next, teachers' attitudes and work flow with respect to standards, curricula, and

standardized assessments are discussed, as well as the various ways that lesson plans

were oriented to standards, curricula, and standardized assessments.

4.1.1.**1 Standards, curricula, and pacing guides**

> *Standards,* as they are used in education, are verbal statements of goals or
> desired classes of outcomes. … Standards-based educational reform has
> the intention of having most or all students reach identified standards and
> of organizing educational services, including teacher preparation and
> instructional interventions (Baker & O'Neil, Jr., 2003, p. 2315).

In the current context, standards are specific learning goals and outcomes that were

required by national-, state-, and local-level regulations and guidelines. The State of

Maryland, where this study was implemented, had state-mandated standards that were

described in the State Curriculum and the Core Learning Goals. Both documents detailed

the standards that were expected to be met in individual schools. The Core Learning

Goals organized those learning outcomes that would be tested by the Maryland State

High School Assessment (HSA), a series of standardized tests that were meant to measure

school performance. Only certain courses were evaluated by the HSA. State-standardized

courses that were not state-assessed were described in the Voluntary State Curriculum.

County-level school districts develop their own *curricula* for different subjects at

each grade level. More detailed than the Core Learning Goals and Voluntary State

Curriculum, a county-level curriculum supports individual teachers' instruction by listing the skills and information that students are expected to learn. The scope of the outcomes in the local-level curricula can be narrower than those in the state-level standards, but there is still room for individual teachers to decide what kinds of instructional experiences can be used to achieve the outcomes. Table 4.2 lists some exemplar standards from both the state and local levels.

As indicated in the table, some standards are more topic-oriented, while others are more skill-oriented. This study found that, among the applicable state and local standards, English standards tended to be more skill-oriented, and social studies standards tended to be more topic-oriented. While the action verbs in both the topic-oriented and skill-oriented standards denote important cognitive levels and thinking skills that students should attain, the difference in emphasis between English and social studies can be seen in objects of those verbs. The objects of the verbs in most English standards are broad noun classes (e.g., non-print text, text features, editorial purpose). The breadth of the object nouns leaves the emphasis on the skill described by the verb (e.g., predict, analyze, extend). The verbs' objects in most social studies standards are specific nouns, such as proper nouns and events (e.g., era of Imperialism, the Red Scare, human rights violations). The relative specificity of the nouns over the verbs shifts the emphasis to the verbs' objects, which are topical. All of the teachers in this study took topical approaches to query formulation and used other aspects of the lesson plan, such as activities and assessments, to finalize selections and transform

Lastly, some counties provide teachers with *pacing guides*, which act as curriculum roadmaps to accomplish topics, skills, and activities. Pacing guides can be

helpful to teachers who want more detailed guidance for aligning their instruction with the standards. When they are mandatory, the narrower scope of a pacing guide might decrease a teacher's liberty to be creative in the classroom.

Table 4.2. Exemplar state- and county-level standards for social studies and English.

Social Studies

U.S. History

State standard	Topic	Skill	County standard	Topic	Skill
Maryland [Indicator] Analyze the causes of World War II in Europe and the Pacific and the involvement of the United States in the war (5.3.2). [Objective] Investigate the response of the United States government to the discovery of the Holocaust and immigration policies with respect to refugees (PS, PNW)	X		**Blue County: Alan, Cory, Ray** Students demonstrate understanding of the cause, course, and consequences of World War II, including the character of the war at home.	X	
			Assess the credibility of primary and secondary sources, assessing the accuracy and adequacy of the author's details to support claims and noting instances of bias, propaganda and stereotyping, and draw sound conclusions. *Author note: This standard builds information literacy skills, rather than historical content knowledge.*		X
			Yellow County: Carl, Jimmy **Advanced Placement Teacher's Guide:** The second World War: The rise of fascism and militarism in Japan, Italy, and Germany. Prelude to war: policy of neutrality.	X	
			Green County: Lily, Wendy World War II → Legacy of the War → Holocaust	X	

World History

State standard	Topic	Skill	County standard	Topic	Skill
Maryland No state-level standards			**Blue County: Alan, Cory, Ray** Students examine how leaders used nationalism as a reason to murder ethnic groups within their population, and learn that Both Germany and Japan had theories about racial hierarchies that were used to justify crimes of genocide, torture, and forced labor. German leaders orchestrated the systematic killing of 6 million Jews. Japan's military committed numerous atrocities towards both civilians and P.O.W.'s.	X	
			Yellow County: Carl, Jimmy **Advanced Placement Teacher's Guide (European History):** Developments in social, economic, and political thought, including ideologies characterized as "-isms." Majority and minority political persecutions.	X	

Chapter 4: Findings. Information Need Context

English	Topic	Skill		Topic	Skill
			Green County: Lily, Wendy World War II → Nazi persecutions (Jews, gypsy, etc.) World War II → Holocaust: Nuremberg Laws to the Final Solution		X
Maryland Standard 1: The student will comprehend and interpret a variety of print, non-print and electronic texts, and other media. Standard 2: The student will analyze and evaluate a variety of print, non-print and electronic texts, and other media. Objective 2.1.4: The student will analyze and evaluate the purpose and effect of non-print texts, including visual, aural, and electronic media.		X	**Blue County: Alan, Cory, Ray** Identical to state-level standards, plus suggested texts and vocabulary		
		X	**Yellow County: Wendy, Lily** All state-level standards, plus additional skills at a similar level of granularity, e.g., "Determine both the explicit and the implicit ideas found in non-print media."	X	

For standardized courses, part of the teachers' task was to create lesson plans that met the standards. The passage from Alan, below, describes how he incorporated awareness of the standards and assessments into his construction of a lesson plan:

> Alan [SS-H/1/Specific]: *I would take the lesson, it's kind of like, 'Okay, well this is a starting point and these are the standards that it's doing, the order that it's doing it.' And I could see where this is the focus here so, if this is the focus here, I can understand. And also from talking to other teachers that this is probably going to have more of an emphasis on their end-of-the-year exams.*

Each teacher worked within a unique permutation of standards, curricula, and standardized assessments, depending on whether his or her course(s):

(1) Was subject to end-of-year standardized testing (e.g., Advanced Placement or state assessment);

(2) Was under the purview of a mandated curriculum;

(3) Was covered by any county- or school-level guidelines (such as pacing guides), which might or might not be monitored by administrators.

Table 4.3 lists the course each teacher was working on during the workshop and the characteristics of that course in terms of standards, a standardized curriculum, and standardized assessment.

Table 4.3. Course, curriculum, and assessment profiles, by teacher.

		Course	Grade	Standards	Std. Curriculum	Std. Assessment
Social Studies	**Alan**	Peace Studies	11 – 12	No	No	No
	Carl	A.P. European History	10 – 12	Yes – College Board's "curricular requirements"	Yes – Standard at the *school* level	Yes – A.P. Exam
	Jimmy	A.P. U.S. History	11 – 12	Yes – College Board's "curricular requirements"	Yes – Standard at the *school* level	Yes – A.P. Exam
	Lily	U.S. History (Honors)	9	Yes	Yes – County curriculum, and Pacing guide	No
English	**Cory**	English	11	Yes	Yes – County curriculum	No
	Mary	Creative Writing	6 – 12	Rarely	No	No
	Ray	English	9	Yes	Yes – County curriculum and Pacing guide	No
	Wendy	English	9	Yes	Yes – County curriculum	No

4.1.1.2 Attitudes and workflow

The teachers shared similar attitudes towards working with standards and

curricula. Teachers acknowledged the importance of standards, and some teachers

mentioned the utility of standardized curricula for providing guidance and pacing, and for

highlighting important concepts to teach.

> Cory [E-Lit/12/Specific]: *I think it's good to have [the curriculum guide] as a back-up in case you, say there's an illness, something happens that eats up your time and you need a fall-back. You don't want to come into class and just say, "I'm sorry guys, I don't have anything today. Just watch this videotape." Then, it's good to have it.*

> Wendy [E-LA/15/Specific]: *[I focus on] the importance of including the core learning goals because those are the learning goals that the students have to have developed so that they can perform reasonably well on the assessments, and that is just critical that you tether them to the plans.*

Teachers also shared a common criticism of standards: That working within an imposed curriculum could compromise individualistic approaches to instruction. This opinion was expressed by Cory and Carl as a criticism of the standards-based approach and by Alan as a feeling of liberty when teaching without standards.

> Cory [E-Lit/12/Specific]: *I can understand the need to have similarity across the curriculum in terms of how teachers present material, but I think you kill a … very significant dynamic when you have everything so structured where I don't even have to make up a lesson plan, I can just print one out and deliver it. I just think that makes it artificial.*

> Carl [H-SS/11/Specific]: *I think the thing with any pacing guide, whether its government or US or world is it'll help bring up a mediocre teacher or bad teacher. But it limits what someone who's creative and really knows the material can do. But it's a price you pay.*

> Alan [SS-H/1/Specific]: *My lesson is going to be for my Peace Studies class, which I have a great deal of freedom and flexibility when it comes to planning. … In Peace Studies there is no standard curriculum and so for the most part … I was able to teach whatever I wanted.*

Further, several of the teachers felt that the presentation of material as prescribed by the state or county curriculum was sometimes pedagogically suboptimal. Hence, the teacher's work involved compensating for shortcomings in the curriculum while making sure that all the required topics were covered.

> Jimmy [SS-H/4/Specific]: *The beginning of the course, the late 1800's, you've got populism, you've got the rise of big business, you've got western expansion, and we study all those as separate units. That's the*

117

way the curriculum is written, that's the way the textbooks are written, and it's very hard to shy away from that. Yet all those things are interconnected, and the kids don't understand the relationships because they look at everything as chronological. And maybe the first four chapters we go through are all happening at the same time. Just like the 1950's, '60's, and '70's, all of that stuff is happening at the same time. They don't understand the connection between why more militant blacks were upset with the Vietnam war because a disproportionate amount of them were going ... because it's all taught separately. There's nothing connecting it. And it's, I kind of feel it's our responsibility to make those connections.

When the teachers were focused on compensating for gaps in the course curriculum, their information needs were influenced by the perceived gap. Search and selection criteria would have to consider filling the gaps in addition to covering the required elements.

These attitudes and orientations toward working with standards, curricula, and standardized assessments were found to have notable implications for content selection. When teachers were planning lessons to meet pre-defined standards, their information need was in some part defined by that standard. The rigidity of the mandate to create specific lesson-to-standard alignments varied from teacher to teacher and school to school. The school-to-school variance could be attributed to the extent to which a particular school uses pacing guides, and the manner in which use occurred. In Ray's [E-Lit/0/None] school, pacing guides were available to teachers for reference, but the individual teacher could decide the extent to which the pacing guide was used to plan the timing of presentations. In Jimmy's school, however, administrators would check in with a teacher periodically to determine whether progress matched the recommendations in the pacing guide.

Jimmy [SS-H/4/Specific]: *They have pacing guides for all the major courses. The frustrating part with our county is that one of the powers that be will say it's just a guideline. Your teachers will respect you, you do*

what you have to do, add, tweak, if you're not exactly where you are on that day – say day 46, you should be here. And then there's other people that completely contradict that, and they will reprimand your department chair for being too far off or too far ahead.

At the time of the workshop, Cory's school system was in the process of formatting and delivering its curriculum in a way similar to the pacing guides described above. The new curriculum guides would give digitized access to standards and to accompanying lesson plans with pre-written objectives.

Cory [E-Lit/12/Specific]: *Thus far, the [curriculum guides] haven't gotten in the way. But when they finish my grade, I feel like it will get in the way because it's going to make everything in this cookie-cutter schematic.*

4.1.1.3 Relationships of lesson plans to curricula and standards

Interviews with teachers brought forth four themes that describe how a particular lesson plan might relate to aspects or items in standards, curricula, and standardized assessments. These themes, described below, are:

1. Aligning lesson with curriculum,

2. Going beyond curriculum,

3. Degrees of liberty within curriculum, and

4. Teaching to the test.

For the sake of brevity, in the forthcoming discussion, the term "curriculum" will be used in a broad sense, which is meant to include standardized curricula, pacing guides, syllabi, and any other implicit or explicit, pre-determined procedure for conducting a unit of study. The term "standard" will also refer somewhat broadly to the individual topics, goals, and objectives that teachers are expected to meet or deliver, no matter how those

expectations are handed down (i.e., through a pacing guide, a county curriculum, the teacher's own syllabus, etc.).

4.1.1.3.1 Aligning lesson with curriculum

All of the participating teachers discussed some aspect of aligning their lesson plans with a curriculum. Aligning a lesson plan with the curriculum means that the teacher would need to ensure that instruction delivered in the classroom met the standards required in any relevant national, state, or local documents, such as curricula and pacing guides.

> Wendy [E-LA/15/Specific]: *Where my teaching's concerned, I clearly think I focused on the learning goals that need to be addressed as we teach certain types of materials. The learning goals for the county, the district, and the learning goals for the state. So I feel that I have made that connection and I've tethered in the goals and used the testimonies, so I've melded the two areas to create the lessons.*

> Ray [E-Lit/0/None]: *I know that in 12th grade, they're supposed to do historical research presentation and that there are certain requirements that my department head would like me to act upon, so it just, you know, after thinking about it for a while, the idea came to me [for a lesson plan about anti-Semitism in The Canterbury Tales], and I just wanted to record it.*

Mary, who taught on a consulting basis in Washington, D.C., was not normally under any obligation to align her lessons with existing standards. Even still, she reported finding value in learning this skill from her workshop colleagues:

> Mary [E-LA/8/None]: *Whenever I have questions, [my team mates] just have a vast array of knowledge about the teaching standards, about how I can manipulate something to fit and to the teaching of all the course materials.*

It is important to note that alignment of standards and lesson plans is not necessarily a discrete task, and that standards are not necessarily treated as checklist items that can be matched into a lesson plan, then forgotten. Standards are written and

operate at different levels of abstraction and granularity, with some standards or

categories of standards needing attention throughout the curriculum, while others might

be sufficiently treated through a few lesson plans. The relationships between standards

and lesson plans can be one-to-many (one standard represented in many lesson plans),

many-to-one (many standards represented in one lesson plan), and/or, less likely, one-to-

one (one standard in one lesson plan). When it came to meeting standards throughout the

curriculum, the more experienced teachers were advantaged in their deeper familiarity

with the standards. Through years of experience, trial-and-error, training, and peer

communication, those teachers had learned which lessons might or might not be suitable

for the delivery of various standards. The experienced teachers had also had time to learn

more about their students and the effectiveness of various techniques for meeting

standards while keeping students interested.

> Jimmy [SS-H/4/Specific]: *The standards that they have for social studies have historical thinking skills. It's five different skills, … intertwined throughout the standards. But basically, it gears the kids to think more analytically. And I don't ever really flip through the standards during the school year, but I always know that I want to get to the point where they can analyze decision-making. And it's always in the back of my mind, but I'm never like, "Oh, God, what do I need to do today?"*

4.1.1.3.2 Going beyond curriculum

At times, the teachers wanted to spend more time on certain topics or explore an issue

beyond those in the curriculum. In those cases, the teacher would use time management

or innovative media presentations and teaching techniques.

As the teacher of an Advanced Placement course, Carl was held to a fast and rigid

pace during the school year, guided by the College Board's curriculum and the Advanced

Placement test near the end of the year. Once these requirements had been met and the

exam was over, Carl would use some of the remaining class time to go back and explore

the Holocaust in more depth with his students:

> Carl [H-SS/11/Specific]: *After the AP test, [the Holocaust] is something the kids are interested in, and it's important. There's a lot of material. This is something I can teach, and so it's maybe not refining but it's expanding a lot beyond what I teach normally. It's giving me a lot more information to be able to walk them through how the Holocaust happens. I tell the AP kids this every year: I think the basic question of 20th Century history is, How does the Holocaust happen in Germany?*

In Cory's [E-Lit/12/Specific] case, the curriculum specified that classical poetry

should be used to teach certain literary terms and devices. From his classroom

experience, Cory found that few of his students enjoyed or connected with classical

poetry, so he used modern poetry and hip-hop lyrics to illustrate parallels between pop

culture and classical poetry.

In each of these cases, the teacher's use "off-script" instructional techniques

whose execution depended on presenting content that supplemented what would normally

come from textbooks or other pre-planned content. Aspects of the information need

would include the topic, the juxtaposition of potential content with other classroom

content, and the available timeframe for working the content (and the lesson itself) into

the existing curriculum.

4.1.1.3.**3 Degrees of liberty within curriculum**

Each teacher's situation exemplified a unique permutation of adherence to external

curriculum guides or standardized assessments. The examples below depict three of the

teachers' profiles with respect to their courses' relationships with standard curricula and standardized assessments.

1. Carl [H-SS/11/Specific] taught Advanced Placement European History. The College Board, the organization that administers the nationwide Advanced Placement curriculum and exams, publishes materials to help teachers plan a course that is on par with college-level European history courses. These materials include a teacher's guide, detailed course description, example syllabi, and example exams. Near the end of the school year, students take the College Board's standardized exam. Those who score above a certain threshold can receive college credit for the course.

2. Cory's [E-Lit/12/Specific] teaching was less constrained, in that his students did not take a standardized test on his 11th-grade English course. However, he was still responsible for delivering lessons that met the learning objectives expressed in the county curriculum.

3. Alan [SS-H/1/Specific] was writing lesson plans for an elective course, Peace Studies, which had no standardized assessment or standardized curriculum.

Each of these situations afforded the instructor a greater or lesser amount of liberty in structuring lessons around his own interpretation of course content and student needs and abilities. Several teachers spoke of the stifling effect that adhering to a curriculum had on their ability to co-plan with teachers in other departments or try other unconventional teaching techniques.

> Carl [H-SS/11/Specific]: *The first school I taught at was a blue-ribbon school, and I actually did team teach with the English teacher. It was great because I would be teaching Greek history, she'd be reading Greek tragedies. And the kids got it. And I'd love to do that again … but because*

of the way the curricula are set up in the county, it's two different directions and never the twain shall meet.

Cory [E-Lit/12/Specific]: *I know ideally it would be nice to incorporate, like if I teach "Rappaccini's Daughter," which deals with science…, and I collaborate with a science teacher about DNA …, that's supposed to be really cool if you do that. …But with the way the standards [are] set up, we just don't see where that can happen. There's no time for that. We just nail these standards out and any extra time I'll spend in hooking interest and keeping interest, but that's it.*

The degree of liberty, whether great or small, constituted part of the teachers' environmental profiles. The way in which the teachers planned lessons and selected accompanying content were influenced by this aspect of the work environment.

4.1.1.3.4 Teaching to the test

For the teachers whose courses culminated in a significant assessment, such as the state-administered high-school assessment or the Advanced Placement exam, students' success on these tests became a prominent influence on how the course was conducted. By supposedly indicating levels of student achievement, these assessments are used to evaluate teacher performance. Lesson plans that aim to present content that will prepare students for the assessment might have a different pedagogical orientation or emphasis than the teacher would otherwise use. For those teachers whose students were formally tested, anticipation of the test became part of the context within which lesson planning and content selection occurred.

Jimmy [SS-H/4/Specific]: *Time is a big issue for us teaching [the Holocaust] because our curriculum really doesn't give it a lot of time in history class. … I've got to figure out the best, most efficient and effective way to teach this in one or two days. …I hate the term 'teaching to the test,' but in terms of what's going to be covered on the test, I've never seen*

a question on the Holocaust in the test. But I don't care about that because I think this is important, and it deserves more than just half of one class.

Wendy [E-LA/15/Specific]: *You'll likely see in my plans, I'll write, "Students will respond critically to non-print text." And that's one of the [state-mandated core learning] goals. It's on not only our county assessment, but it's definitely on the state assessment. So that's just one of the focal points that I tried to accomplish.*

As the issues and examples above describe, formalized, prescribed learning objectives and accountability measures introduced different kinds of constraints to the teachers' decision-making process during content selection. There was a mix of beneficial and detrimental effects, and the experiences of these effects varied from teacher to teacher. While standards and required curricula provided some valuable guidance to teachers in deciding what to teach, the more narrow or specific aspects of these requirements stifled teachers' inclinations to innovate. When a required curriculum was particularly dense, the teacher did not have time to introduce students to concepts or connections that went beyond the standards. In these ways, the environment within which the teachers performed content selection was notably colored by standards, curricula, and standardized assessments.

4.1.**2 Human Environment**

Human Environment

Overview

Teaching occurs within an amalgamation of relationships and communities, encompassing classrooms, schools, counties, and cultures. Lesson planning and content selection were found to influence and be influenced by characteristics of the people, groups, and relationships that touch upon the educational process. Most resoundingly, all of the teachers wanted their students to find meaningful connections with lesson plan content, including the stories of Holocaust survivors. The teachers reported that customizing lesson plan content to salient aspects of students' identities was a key

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strategy for "reaching" them. In order to cater to students' identities, teachers used their knowledge of student demographics (Cory [E-Lit/12/Specific]) and community characteristics (Wendy [E-LA/15/Specific]) as building blocks for topics and activities.

Highlighted Findings

- All of the teachers cited students' ethnic, religious, cultural, or economic identities as important facets for understanding students and facilitating meaningful interpersonal and educational connections.
- Carl [H-SS/11/Specific], Jimmy [SS-H/4/Specific], and Lily [SS-H/5/Rough] saw the socio-ethnic homogeneity of their schools' communities as reason to include in their instruction portrayals of other cultures and discussions of tolerance.
- Incidents of racial tension in Lily's school contributed directly and indirectly to her incentive to incorporate tolerance into her history lesson plans.
- Cory's [E-Lit/12/Specific] and Wendy [E-LA/15/Specific]'s schools were both situated in highly diverse suburban communities. Almost all of Mary's [E-LA/8/None] students were African-American, and their schools were in an economically strained, inner-city neighborhood. All three teachers saw in these environments a need for open communication about diversity, power, and tolerance.

Whether the task at hand is solitary, collaborative, or presentational, the work of a school teacher is performed in a complex human environment with aspects that are social, cultural, economic, and political. Any person could be said to operate within a combination of environments at any given time, including professional, familial, community, national, religious, and so on. For this study, the environments of focus were the school environment and the broader environment, which includes any type of non-school environment that impacted a teacher's content selection. The label *human environment* is a broadened conceptualization of what Vicente (1999) called *organizational environment.* It became evident during data analysis that while the primary organization (in this case, the school) impacted the information need context, so too did other organizations and non-organized communities in the teachers' spheres of experience.

4.1.2.1 In-school environment

There are two primary groups teachers interact with in school: students and colleagues (including administrators). Aspects of these groups and the interactions and relationships that occur can be any combination of the social, cultural, economic, and political. The teachers' understanding of these environmental forces shaped, in part, how they conceptualized lesson planning and content selection. Aspects of the environment influenced the teachers' work, and vice versa.

The human environment of students in the school is a major factor behind several aspects of school life, from dress codes to desk configurations to in-class discussions of ethnicity. The case box below contains an example of this influence from Lily's school.

Lily [SS-H/5/Rough] described a situation of cultural tension and discrimination among students in her school. Incidents of this type set into motion a political initiative whereby administrators encouraged teachers to adjust their lessons by promoting tolerance and respect among students.

I was so shocked how much anti-Semitism there was in Europe. ... So then I thought, "Okay, well it's in our society too." ... And I know it's a big push in our school [Political] *to talk about it, you know to respect others, but there are a lot of incidents of prejudice and discrimination in our school* [Social, Cultural]. *So I thought it would be a good opportunity to bring that in and then talk about it.*

Within the school-as-organization, cultural and political behaviors by students and administrators, respectively, trickled down to influence the selection criteria that Lily had in mind when formulating query topics and evaluating segments.

Aspects of the human environment among teachers can also influence how they go about their work. In the example below, Carl describes how the likelihood of cross-disciplinary teaching collaboration can be influenced by a mix of the social (in this case, interpersonal) and political (in this case, administrative).

> Carl [H-SS/11/Specific]: *There are some people in the department I could not work with simply because of personality issues.* [Social/interpersonal] *… I actually did team teach … and I'd love to do that again … but because of the way the curricula are set up in the county, it's two different directions and never the twain shall meet* [Political/administrative].

4.1.2.2 Broader environment

Since members of the in-school community also belonged to other communities and environments, aspects of those broader environments could be carried into school life by students, parents, teachers, and administrators. Schools can be melting pots or mixing bowls where values, knowledge, beliefs, and perspectives comingle among people of different ethnic, religious, familial, and economic backgrounds.

> Wendy [E-LA/15/Specific]: *[My school] is very diverse, ethnically diverse. We have Native Americans, we have Hispanics, we have Middle Easterners, we have African Americans, we have Caucasian students, and some from … African countries. We have recently had … an influx of students from the urban areas because they've been transplanted [here] where there is subsidized housing. … And that can at times be a challenge because the skills are not very good when they come to the school and even the socialization that's a big part of learning, that's not intact. So it takes some time to build upon those students with such deficits, and that's the difference. We're usually in the trenches doing more extended kinds of things.*

The passage above shows that Wendy perceived that characteristics of the broader environment in which her school was situated shaped her students' abilities to learn in the classroom and interact socially. Wendy and her in-school colleagues adjusted their teaching by extending activities to mitigate the effects of the economically strained, heterogeneous, and diasporic nature of students' broader environments.

Teachers frequently discussed aspects of their students' social, economic, and cultural groups and identities. Teachers from ethnically homogenous schools (Carl,

Jimmy, Lily [SS-H/5/Rough]) and teachers from ethnically heterogeneous schools (Alan

[SS-H/1/Specific], Cory, Mary) both saw the level of diversity in the classroom as reason

to discuss tolerance.

> Carl [H-SS/11/Specific]: *Jimmy and I've both mentioned teaching at a very white, Christian, and it's like a time warp … So in some ways it's like Tim and I are out there doing missionary work.*

> Jimmy [SS-H/4/Specific]: *I could have a kid with Jewish ancestry never tell me anything in class about it … That's one segment of our school population that is very underrepresented. I mean, it's 95% white, Caucasian. So they definitely need kind of a historical reality check because when you live in that area you tend to think that everywhere else is exactly like yours and it's not, and they need to understand that.*

> Cory [E-Lit/12/Specific]: *[Talking] about the Holocaust … can be a sounding board for other issues that, if you're dealing with a diverse population as a classroom, are important to discuss and be prepared to deal with other culture groups that have gone through experiences of oppression, hate, bigotry, intolerance. And so those discussions have been good.*

> Mary [E-LA/8/None]: *Teaching tolerance, I just think that that's something I'm consistently conscious of. When I'm in the classroom, I try and expose students to being tolerant of other people. Especially because the audience that I work with tend to be African-American or lower income, and they really don't have a lot of resources within the school … So I try and always find literature that's sort of, when we dig into it and analyze it, that they learn something about other people.*

Teachers' impressions of these aspects of student life had implications for lesson

planning in general and content selection in particular because teachers wanted to present

to students materials that resonated cognitively, emotionally, or culturally. Whether

teachers' impressions of their students' characteristics were completely accurate or not,

these impressions drove teachers' decision making during content selection.

4.1.**3 Physical Environment**

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Physical Environment

Overview

The physical level of the environment was found to affect the nature and quality of the teachers' day-to-day work. When it came to selecting multimedia content for lesson plans, finding, scheduling, coordinating, maintaining and using technology were reported as presenting a logistical filter between idea and implementation. Although Alan [SS-H/1/Specific] expressed that he would not let logistical challenges prevent him from showing "a great source," the potential exists for logistics to increase the threshold of which sources would or would not be worth the extra coordination.

Highlighted Findings

- None of the teachers' classrooms were equipped with the necessary equipment for presenting audio-visual media. In order to implement multimedia lesson plans, all of the teachers had to pre-plan in order to reserve portable equipment or class time in the computer lab.
- The logistics of scheduling, transporting, and troubleshooting problems with equipment were reported by all of the teachers as part of the job. These aspects of planning and presenting instruction take valuable time and concentration away from the content of their lessons.

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The effects of physical environment on overall workflow were various, including annoying noise distractions, classroom layout, and equipment portability. Of the discussions of physical environment in the data, several topics could have implications for the information need context, especially with regards to environments that foster reasonable access to technology for presenting media to students.

4.1.3.**1 Logistics of using technology**

Several teachers discussed the difficulty introduced by getting the necessary technology into the classroom so that students could view media. The fact that these

facilities usually have to be shared among all the teachers in a department or school

meant logistical difficulties in planning ahead to reserve equipment, in moving the

equipment from room to room during the busy school day, and in keeping presentation

tools in working order. One of the first difficulties introduced by sharing equipment lay in

planning and reserving equipment ahead of time. In some schools, such as Cory [E-

Lit/12/Specific]'s, teachers reserved media equipment before the school year started,

which meant the teacher had to correctly forecast when a lesson plan would occur, which

media would be needed, and how many days the media would need to be in the

classroom. If the pacing of that year's lessons ended up too slow, the equipment would be

available before students had been prepared by the lead-up lessons. If the class was

running ahead of schedule, the lesson plan would be missing the planned media

presentation, and the students would not get to experience the media until another lesson

plan had begun. Even teachers with enough experience to have a precise and relatively

reliable timing estimate would not be able to account for snow days or other disruptions

to the academic schedule.

Another drawback of sharing equipment among classrooms was found in the

physical task of moving equipment from the media center (or prior classroom) to the right

place during the brief and crowded period between classes.

> Alan [SS-H/1/Specific]: *Here at our school, we have our projectors, which*
> *we call our Computers On Wheels – COWS. And so, you have to check it*
> *out and you reserve it for a day and you could bring it into your*
> *classroom. Well you didn't have to do that at the other school [where I did*
> *student teaching]. You didn't have to worry about 'is one available?'*
> *Unfortunately, Social Studies uses theirs all the time and so then you have*
> *to track down Math because they never use theirs. … If it was at the other*
> *school I wouldn't have to do all this stuff about making sure I have the*
> *right equipment checked out; it was all there. So, that's generally how it'd*
> *make a difference. And if I forgot to check it out and I went in that*

morning and it was checked out by somebody else, then, 'Oh dear God, what am I going to do?'

Cory [E-Lit/12/Specific]: *I have to sign out the projector in advance or else it'll be all gone and it'll throw off your whole plan. I have to get it early in the morning and set it up. If I change rooms, I have to have it on something where as soon as that bell rings, it's just a nightmare in the hallway just rolling this thing out to the next room, getting to the computer, logging in, setting it up and everything before that final bell rings.*

Sometimes, teachers wanted to create activities where students could interact with media directly, rather than viewing presentations via television or projector. These kinds of experiences would require lab time so that students could work independently. Ray felt that students would engage more deeply with material if they could search topics of their own interest, while Jimmy felt that students would share more honest reactions to materials in an individual, computer-lab interaction with testimonies rather than an in-class presentation.

Ray [E-Lit/0/None]: *I would want to let them search testimony, and I would want to let them find topics that interest them about this period and have survivors testify about what it means.*

Jimmy [SS-H/4/Specific]: *What I'm going to try to do is sit down and start embedding the DVD clips into a Power Point, and the Power Point will be made available on the desktop in a computer lab setting to where the kids can guide themselves through it.*

Just as difficulties were found in having presentation media easily available, this study also found logistical issues with scheduling times for students to use computers. None of the teachers in this study had classrooms that were equipped with enough computers for their students to work independently or in small groups. Instead, hands-on, computer-based activities would require time in a computer lab. As with equipment, lab

time required advance reservation, which meant teachers had to forecast as accurately as possible the timing of such lab activities in the school year. The journey to the computer lab was reported consume precious class time, and once students were seated at their workstations, slow computers could further impede the flow of a lesson or activity. When class sizes exceeded computer lab facilities, teachers would have to find a way to format activities so that students could take turns or work in teams.

> Cory [E-Lit/12/Specific]: *The computers are literally, some will take 15 minutes to log on. And so if you're dealing with a class that's 53 minutes … And 15 minutes out, it's just frustrating. So that problem is supposed to be eliminated, we're supposed to have better computers in our classrooms which can run faster and thus cut down on set-up time, so it can make it easier for us, for those of us who choose to use media. Not all of us do it, but I love to do it. It's the only way I feel is going to work.*

> Wendy [E-LA/15/Specific]: *You know my problem with taking my kids to the computer lab and listening to testimony is that the computers are not always all working. So if I have a class of 34, and I expect them to listen to testimony, some will not be able to do it.*

Despite these barriers to media presentations and activities, one teacher specifically reported that he was willing to work within situational constraints to enhance students' learning experiences. Indeed, none of the teachers' stories of logistical complications came with declarations that the complications prevented them from finding a way to present these media to their students. Issues with technology and facilities might have made media presentations more difficult, but if the content was good, the teachers seemed willing to go to the extra trouble.

> Alan [SS-H/1/Specific]: *There definitely is an impact. I wouldn't say there is an impact on, if I found something I wouldn't use it. So it's not like if I found a great source, saw a great piece that visual or that's on a tape or something I would still use it. It might be a little bit more difficult. … Yeah, so you have to run around the school like a chicken with your head cut off trying to find stuff. And that's how mainly it would affect.*

While Alan was confident that he would not let logistics prevent him from showing his students a "great source," it seems as though the difficulties reported by these teachers could influence decision making during the content selection process. For example, a teacher might have wished to use a passage of survivor testimony during a warm-up activity to generate classroom conversation about anti-Semitism. If no other video presentations were to be used during that particular lesson plan, the teacher might have decided that one clip for a warm-up would not be worth the trouble of retrieving the television cart from the media center, especially if she or he thought that an anecdote would serve the same purpose with less trouble.

These scenarios and considerations, while mundane, present tangible implications for content selection. The teachers' awareness of the physical attributes of the environment – including usable technology formats, equipment availability, and class-time logistics – guided the construction of lessons to be presented in that environment. During content selection, resources that could not be presented in a particular teacher's environment would be filtered from consideration. Of the available remaining resources, ease of access might influence decisions about use. These considerations and decisions somewhat complicate content selection and lesson planning. Hence, one likely benefit of having well-equipped classrooms is that fewer presentation-related logistics and complications mean more time for a teacher to enhance the learning experience in other ways, and the wider the universe of available and presentable content.

4.2 Role

Wilson (1981) defines the work role as, "the set of activities, responsibilities, etc. …

in some organizational setting, in pursuit of earnings and other satisfaction" (p. 10). Since

all participants had the same role – teacher – there was much similarity in their activities,

responsibilities, and organizational settings. Characteristics of these are described in the

sections on Task (4.4, further below) and Environment (4.1, above). Below are provided

some examples of how teachers' multiple roles affected content selection, followed by

descriptions of several particular aspects of teachers' roles that were found to be

important for describing the information need context. These aspects are:

1. Subject taught,

2. Amount of teaching experience, and

3. Pedagogical stance.

4.2.1 Multifaceted Roles and Content Selection

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Multifaceted Roles and Content Selection

Overview

A teacher's role includes many facets, and some of these were found to influence
content selection. Some teachers reported taking care to avoid content that was too
graphic or preachy.

Highlighted findings

- No findings in this section rose to significant weight.

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Generally speaking, a teacher's role is to plan and present lessons to students in such

a way that students can meet learning objectives at an acceptable level. Teachers in this

study spoke frequently of the task-related aspects of their roles, including writing lesson plans, creating activities and assessments, selecting and presenting content, adhering to standards and learning objectives, and scheduling media content and equipment.

Teachers also spoke of the relational aspects of their roles, including relationships with students, other teachers, administrators, and school districts. This relational level of the teacher's role with students establishes some of the context within which information seeking happens during content selection. Alan and Cory both explained that they saw a boundary in their role: The teacher's role included providing information but excluded telling students what to think. Awareness of this boundary shaped some of the criteria they used to seek and select content.

> Alan [SS-H/1/Specific]: *What I want is something where it's very much about moving into the future, taking action, whatever it is that you believe in, standing up ... My job isn't necessarily to tell them what to care about, but I think in the course of this class [Peace Studies], that it comes out as far as what is important.*

> Cory [E-Lit/12/Specific]: *Sometimes we teachers I believe can become arrogant in our profession, thinking that we can teach and complete certain things, and you may not be able to. ... And though we may not be able to teach [tolerance] and in quantifiable terms prove that we taught it, we can at least give students exposure to truth so that they can make informed decisions and more intelligent decisions because they've seen truth.*

When Carl found himself becoming engrossed in the testimonies, he used his role as a motivation to shift his attention to the task at hand. Whereas Carl-as-historian would have liked to spend more time learning about the Holocaust through the survivor testimonies, Carl-as-teacher knew that there was another task to be accomplished. By staying aware of his role, Carl was better able to stay on task and continue through his lesson plan.

> Carl [H-SS/11/Specific]: *It's kind of the difference between using the material to teach and using the material to educate myself. It's really hard probably for all of us because we all like to learn, but I try to focus very much on what's going to help the kids. What do I need to teach them better?*

Another aspect of the teacher's role that was particularly important for content selection was to filter potentially inappropriate or traumatic material from students. In order to do this, the teachers had to have a sense of what was and was not appropriate for students to see and hear. This sense was likely constructed from several sources, including learner analysis, discussions with other teachers and media specialists, and life experience. Lily embodied this role when she was selecting from a number of stories about life and death in concentration camps.

> Lily [SS-H/5/Rough]: [upon discussing torture methods in camps] *I want to be careful with my kids as far as what I really want them to know. … I mean, I don't think my kids really need to see something like that.*

In terms of their impact on information seeking, these perspectives did not necessarily translate into query terms or specific relevance criteria. Rather, they illustrate role-specific aspects of the teachers' profiles, and the motivational context within which media were being sought and selected.

4.2.**2 Subject Taught**

Subject Taught

Overview

The standardized English curricula used in this study were found to emphasize different knowledge types than the social studies curricula, which resulted in different approaches to lesson planning and content selection by teachers of these two subjects.

Highlighted findings

- The epistemology, conceptual structure, and narrative frameworks of English and social studies topics and curricula were found to differ from one another.
- Epistemological and ontological disciplinary traditions shaped the topics of the teachers' lesson plans and the relationships of those topics with the standards. Cory [E-Lit/12/Specific] and Ray [E-Lit/0/None] shaped their lesson plans around works of literature. Mary [E-LA/8/None] and Wendy [E-LA/15/Specific] shaped their lesson plans around communication and humanistic themes. Carl [H-SS/11/Specific], Jimmy [SS-H/4/Specific], and Lily's [SS-H/5/Rough] lesson plan topics aligned with factual aspects and events of the Holocaust.

Teachers' information need contexts were influenced by the disciplinary aspect of their roles. In this study, differences were found between teachers of social studies and English. While differences in teaching strategies and lesson topics might have been expected, differences were also found in how teachers conceptualized and organized their searches over the course of the workshop's week. These search-related findings are described in Chapter 5. In order to better understand how and why subject was an important variable, one should examine the narrative framework of most history and English classes as well as the types of standards and learning objectives that were associated with these courses.

Of the four social studies teachers in this study, three taught history courses. Two (Jimmy and Lily) taught United States History and one (Carl) taught European History. In history courses, units are customarily delivered chronologically, with each unit pertaining to a major historical event or issue, such as the Industrial Revolution or World War II. The standards for these courses are oriented around events, people, institutions, and movements. Table 4.2, above, lists some exemplar standards from the state and counties in which this study's teachers worked. As their lesson plans were framed around factual,

event-based learning objectives, social studies teachers in this workshop primarily used

Holocaust survivor testimonies to offer a human perspective on the events around which

lesson plans were oriented (World War II and the Holocaust).

The narrative of high-school English courses is quite different. Standards and

standard curricula for English courses in Maryland are oriented toward communication

skills, strategies, and techniques. Specific literary movements, authors, and texts are not

written into the standards and standard curricula. Rather, teachers select literature (often

from a limited pool, known as anchor texts) that students can use as a vehicle for building

and practicing the required skills. In this way, the English teachers at the workshop began

writing their lesson plans in a less constrained situation than the history teachers because

the topic of history lesson plans aligned quite closely with items from the (topically-

oriented) curriculum, whereas the topics of English lesson plans usually pertained to

particular literary works (Cory, Ray) or themes (Mary, Wendy). These works and themes

were chosen by the teachers, not their curricula. The skills in the English standards and

curricula were embedded in the lesson plans, but they were not the primary topics of the

lesson plans.

The following two scenarios, which describe the relationship between standards and

lesson plans for a history plan and an English plan, illustrate the difference.

In Green County's United States history curriculum, the Holocaust (a factual event) is one of fourteen topics to be covered during the World War II unit. A teacher can decide how to teach students about the Holocaust, but the topic of any Holocaust-related lesson plans will pertain to the events and issues surrounding the Holocaust. Lily, a history teacher from Green County wrote a lesson plan about the different types and locations of concentration camps. The topics of the segments that would suit Lily's lesson plan (e.g., camp life) were closely aligned with the topics of the lesson plan itself (e.g., similarities and differences among various camps), which in turn were closely aligned with the concepts represented in the applicable standard: "The student will demonstrate the ability to evaluate the Holocaust experience …" (Green County Public School System, 2006).

Wendy [E-LA/15/Specific] was an English teacher from the same county as Lily. The standards in the county's English 9 curriculum (including their subsuming indicators and objectives) represented skills that could be applied to media and concepts covering almost any topic. At the workshop, Wendy constructed a lesson plan called "Filial Piety and Compassion," which was to satisfy the curriculum objective, "The student will identify how language choices in writing and speaking affect thoughts and feelings" (Green County Public School System, n.d.). In the lesson plan's selected segments, interviewees described the impacts of acts of compassion during Holocaust events. Because the crux of the relevant standard had to do with "language choices in writing and speaking," the rhetorical delivery of each segment was a more important feature than the topic. The topics of compassion and filial piety were held in common between the lesson plan and the segments, but there was nothing about the standard that required that compassion or filial piety be represented. As long as she made sure the students learned "to identify how language choices … affect thoughts and feelings," Wendy was free to convey this skill via the topic(s) and media of her choosing.

As described in Section 4.1.1, above, English standards tend to enumerate skills, and history standards tend to enumerate facts. At the workshop, these trends in orientation resulted in a necessarily tighter standard-to-lesson-plan topical coupling for history courses than for English courses. Whether a teacher's role was that of history or English teacher, the information need context was shaped to some extent by this phenomenon. As described in Chapter 5, there were differences in the breadth of query topics used by English teachers versus social studies teachers.

4.2.3 Amount of Teaching Experience

Amount of Teaching Experience

Overview

The teachers' levels of experience were found to lead to different approaches to seeking, selecting, and incorporating information into lesson plans. Teachers with years in the classroom reaped the benefits of their experience in the form of personal collections of reflection, knowledge, information, and resources.

Highlighted findings

- Experienced teachers Carl [H-SS/11/Specific], Cory [E-Lit/12/Specific], Jimmy [SS-H/4/Specific], Lily [SS-H/5/Rough], and Wendy [E-LA/15/Specific] all described use of a personal trove of internalized information, reflective deductions, and tried-and-true resources and techniques during the planning, revision, and content selection.
- Newer teachers Alan [SS-H/1/Specific] and Ray [E-Lit/0/None] reported their efforts were more focused on establishing themselves as teachers, learning the standards and procedures, building relationships, and creating initial lesson plans.

Another aspect of work role that had implications for content selection (and other aspects of teaching) was the amount of teaching experience. The range of experience levels among this study's participants was from zero (Ray, a rising first-year teacher) to fifteen years (Wendy).

The teachers' experience levels were part of their information need contexts in that teachers with more experience reported tried-and-true techniques for teaching, assessing, lesson planning, and searching for media content. Experienced teachers like Carl [H-SS/11/Specific], Cory [E-Lit/12/Specific], Jimmy [SS-H/4/Specific], Lily [SS-H/5/Rough], and Wendy [E-LA/15/Specific] had the benefit of personal collections of information in the forms of external content and internal knowledge. These collections added valuable information to the content-selection process at the workshop and beyond.

> Carl: *It's an advantage that I've been teaching for ten years now, you know, I've got worksheets, I've got stories.*

Teachers with more experience could better judge from the outset what kinds of materials would work in the classroom based on many dimensions, such as topic, media format, and compatibility with student characteristics. From this base of knowledge and experience, they had gradually constructed inclinations towards a more limited set of

content types and sources than the newer teachers (Alan [SS-H/1/Specific] and Ray [E-Lit/0/None]), who had not yet developed such predilections. Each year of teaching constitutes an iteration through the curriculum, and with each iteration, teachers become more familiar with:

- the content of the curriculum (such as standards and lesson plans),

- the subject-content of the course (such as facts, processes, perspectives, and interpretations),

- the characteristics of students, and

- the responses of students to course content (via direct feedback and performance on assessments).

With their increased familiarity, experienced teachers reported having more expertise and time to spend personalizing, refining, or enhancing lesson plans.

> Lily [SS-H/5/Rough]: *I have all of my lessons, I've been teaching for six years now, so I pretty much have it down what I like. And I have them all in binders by unit so when I start a new unit, I'll pull out the binder. And I usually write notes to myself what I liked … what needed to be fixed or fine tuned.*

> Cory [E-Lit/12/Specific]: *[From year to year my instruction] is essentially the same in terms of standards and objectives. … I'm always trying to improve it, so there's little changes that I make. But essentially it's the same thing.*

While more experienced teachers would spend their time and cognitive energy on updating, honing, and enhancing existing lessons, Alan described his experience as a new teacher as more focused on establishing himself, becoming familiar with the environment, and constructing or selecting lesson plans.

> Alan [SS-H/1/Specific]: *I ran into a problem that it takes a good amount of time for me to build those lessons, especially finding the information. … What I wanted to and what I could do weren't always the same thing … I*

think that was more just being a new teacher ... because there's so much going on ... that to build every lesson [with that time effort] ...would have driven me crazy!

Alan revealed an awareness that once he got more settled at his new school, he could look forward to gradually finding information sources to work into his lessons. With increased knowledge and the ebb and flow of requirements, approaches, and ideas would come a corresponding evolution in the teacher's information need context.

4.2.**4 Pedagogical Stance**

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Pedagogical Stance

Overview

Pedagogical stance, which describes a teacher's professional identity, conceptual system, teaching philosophy, and practical theories of teaching, was found to play a direct role in shaping lesson plan topics, rationales, objectives, and activities. A derivative, indirect influence on content selection occurred, in that the criteria for seeking and selecting content were influenced by the characteristics of the lesson plan elements that were stance-inspired.

Highlighted findings

- Every teacher in the study mentioned one or more beliefs, principles, or techniques that they infused throughout their teaching.

</div>

The sections immediately preceding this one describe different aspects of teachers' roles that contribute to the information need context. A teacher's pedagogical stance is built from one or more elements of the work that a teacher holds dear and considers an important part of professional identity and mission.

> The concept of pedagogical stance encapsulates the way in which staff … see themselves as teachers. Staff's stances emerge from their prior learning experiences, and their often taken-for-granted notions of learning and teaching. The notion of pedagogical stance also depicts the way in which

staff see students in particular educational environments. The choices and interventions that staff make within a learning environment and the particular learner history which they bring to a learning environment all emerge from their pedagogical stance. Thus, the concept of pedagogical stance acknowledges the relationship between the self and what is being taught (Murray & Savin-Baden, 2000, p. 118).

Elements of pedagogical stances appeared in conversations with and among teachers when they discussed their work, their students, or the educational process in general.

A teacher's pedagogical stance might influence any aspect of a lesson plan, including the lesson-plan topic, teaching techniques, classroom activities, or media content. For example, during a content selection task, the pedagogical stance might color the lenses through which the teacher views search results. If several segments are available that meet the topical criteria, a segment that jibes with a teacher's stance will likely be preferred. When the influence of stance is on a broad aspect of the lesson plan, such as the topic or rationale, there may still be an indirect influence on content selection (i.e., stance influences lesson topic, lesson topic influences content selection). Table 4.4 presents one element of two teachers' pedagogical stances and aligns it with evidence of the stance's influence on lesson planning and subsequent content selection.

This study found that pedagogical stance makes a considerable contribution to the texture of a teacher's role in the realm of the information need context. Its place in the framework overlaps between Work Role and Person because some aspects of teachers' personal identities were likely to be expressed in their pedagogical stances. Hence, the pedagogical stance is part of *who* the person is that seeks, evaluates, and selects information. While the same person might seek information in another context (e.g., for personal entertainment), it is primarily when information seeking is for content selection

that the pedagogical stance comes into play; specifically, when the person is acting in the *role* of teacher. Hence, the influence of pedagogical stance during information seeking is a concert of characteristics of the person and the role.

4.3 Person

As seen in the prior two sections, characteristics of the environment and role contributed to the overall picture of teachers' information need contexts. Characteristics of the person – the information seeker – were also woven into this complex, multilayered portrait of context. The aspects of person that were found in this study to have particular bearing on the information need are:

- The person's needs (cognitive-intellectual and affective),
- The person's competencies, and
- The person's identity.

Chapter 4: Findings. Information Need Context

Table 4.4. Exemplar pedagogical stances and their expression in lesson plans and content selection.

	Teacher's Statement of Stance	Stance in Lesson Plan	Subsequent Search & Selection
Alan	I would start the class with some kind of … warm-up … <u>Something that anybody can answer to.</u> I don't have to worry about student x didn't do his homework and can't answer the question. … I want a starting point where the student says, "Ok. I'm still in this. I'm not already screwed."	**Resistance during the Holocaust** *Warm Up:* Considering what you have learned in the previous lessons about Gandhi's use of non-cooperation/non-violence, how effective do you believe Gandhi's methods would have been to confront Nazi Germany and the Holocaust?	***Query:*** Gandhi ***Relevance Criteria Used:*** Relationship to topic; Relates to other schoolwork
	Wanted students to feel like part of the discussion, regardless of current achievement level	Created as a warm-up activity an open question where students can express their opinions of connections between course concepts.	From his query for segments that talk about Gandhi, he was looking for survivor perspectives on non-cooperation
Cory	[The 'world controllers' in *Brave New World*] seduce you into doing what they want by making you feel good … through drugs, through sex, through entertainment. And through consumption. … Then you wouldn't have time to think about what you are doing, what choices you're making.… They're the ones who are in control, and you're not. And so I tie that, <u>every unit I teach is pretty much tied together by that strand.</u> … Because I really believe that is what's happening to our kids, our children. You know, they're not really living, they're just being seduced by what the media thinks they see, that's meaningless, but they feel it's very important. And so they behave in ways that are oftentimes inappropriate and because they really don't know any better.	**Who is in Control of Your Mind?** *Overview:* The *Brave New World* is a society where meaningful human life is cheapened or considered obscene, thus people live from day to day without resistance to Europe because they are too busy getting high or spending money for entertainment. *Rationale:* The purpose of this lesson will be to introduce students to actual propaganda techniques that were used prior to the Holocaust with the persecution of the Jews, and to research other examples of propaganda that exist in their contemporary world.	***Query:*** Propaganda ***Relevance Criteria Used:*** Relationship to topic; Students identify with interviewee ***Segment selection rationale:*** I was able to find some examples of Jews who talked about propaganda, the specific propaganda they saw and how it affected their lives– in terms of school. They would go play games like catch and tag and baseball and games that allowed you to pick teams. And then after propaganda came out … things changed on the playground, where she wasn't getting picked to be on teams.
	Wanted students to be critical and vigilant of forces that encourage numbness through consumption and consumerism.	Created a lesson plan that bridged literature to history and illustrated the real-life consequences of government propaganda as a tool for controlling the national mindset.	He selected a segment that "brings home" the lesson rationale to a setting all of his students could identify with: the playground.

As teachers discussed the flow and products of their work during the workshop, they frequently wove into their descriptions aspects of their individual working styles, preferences, and backgrounds. It could be argued that given two teachers with the same class in the same school (i.e., identical environment, role, and task), aspects of the individual would account for many of the differences in how these two people would approach content selection. This study identified themes that provide some evidence of personal qualities that have bearing on the information need context, the information search process, and relevance criteria.

4.3.1 Needs

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Needs

Overview

All of the teachers provided examples of the influences of feelings, cognitive styles, and inquisitive on the processes of searching for and selecting VHA content for their lesson plans. None of the specific needs were found to be unanimous or meaningfully contrasted or stratified among the teachers.

Highlighted findings

- No findings in this section rose to significant weight.

</div>

In addition to the situationally-oriented aspects of the information need, which arose primarily from the task profile, teachers also articulated cognitive-intellectual and affective needs that influenced their work during content selection. These are described in the following two sub-sections.

4.3.1.**1 Cognitive-intellectual needs**

Wilson's (1981) model includes cognitive needs as an important aspect of the individual. This term, *cognitive,* was modified to *cognitive-intellectual* to account for the variety of cognitive levels and functions that appeared in the data. In this section, *cognitive needs* are associated with describing <u>how</u> the teachers thought (thought process), whereas *intellectual needs* are associated with describing what the teachers thought about or <u>what</u> they wanted to know (thought content).

4.3.1.1.**1 Cognitive needs**

The process of seeking information is highly cognitive and requires the searcher to incorporate information processing and decision making into a single process (Jarvelin & Wilson, 2003). At the workshop, teachers carried out this process within the context of another thought-heavy process, lesson planning. When the teachers were asked about their content selection thoughts and behaviors, some of them included descriptions of their cognitive needs, styles, and abilities as components of the overall experience. In the example below, Carl described how his search sequence was influenced by his tendency to organize historical concepts a certain way.

Being a historian, I like things to go in chronological order.

Carl's [H-SS/11/Specific] search topics over the course of the week roughly adhered to a chronology of the Holocaust, beginning with pre-war pogroms and the Nuremburg Laws (1935), then progressing through a series of queries about different types of people who were targets of Nazi persecution (including Jehovah's Witnesses, homosexuals, and gypsies). Next, Carl conducted a series of searches about prisoners of war, then about aspects of life in concentration camps before moving on to the Sobibor uprising of 1943 and the Nuremburg

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Trials of 1945-1946. These chronologically-arranged searches were conducted from Tuesday through Thursday of the workshop week and were interspersed with occasional searches for particular segment numbers or proper names, which were most often segments that workshop colleagues recommended to Carl or which he had seen previously. After Carl had finished the chronological progression through the war on Thursday afternoon, his searches became much more sporadic, if compared with a timeline of Holocaust events. These searches were interspersed with activities in the software's lesson-plan module and most likely represent Carl's decision to spend the last day of the workshop filling in any gaps he saw in the lesson plan.

The important point here is that Carl's natural inclination, which presumably was at least somewhat correlated with his role as a history teacher, was to proceed through content selection chronologically. His cognitive need in this situation was to have the liberty and capability to construct his searches and his lesson plan in the way that made most sense to him.

Many times throughout the workshop, the results of teachers' searches would introduce tangents to their planned work paths. When enough time was allotted to a search session, the teacher could feel free to follow some of these tangents at least far enough to discern whether further pursuit was worthwhile. Additionally, if the teacher was beginning content selection for a new task, such as a lesson plan, activity, or assignment, there should ideally have been enough time for the teacher to progress through a period of exploration and experimentation. During such a period, the teacher would have had more opportunity to explore the suitability of the information system for the task at hand and to have made any necessary adjustments to task conceptualization and search strategy. If time was not available for such exploration and adjustment, it became even more important for the teachers' interaction with the information system to yield predictable results that could be reviewed and evaluated quickly. Sometimes, in the interest of time, "good enough" and "optimal" were synonyms.

4.3.1.1.**2 Intellectual needs**

In addition to describing some aspects of their cognitive styles and needs, the

teachers discussed the intellectual level of their motivation, work flow, and satisfaction.

Teachers understood lesson topics, teaching, and the content selection process on an

intellectual level, and some teachers identified a need to enrich their knowledge in these

areas.

> Alan [SS-H/1/Specific]: *Sometimes I get caught up because I like the stuff.*
> *I'm interested in it. So, all of the sudden if I find something interesting I*
> *might just sit there and read it. ... I love history. ... There's always more*
> *stuff that I can learn. So, for me that's one thing I'm always doing.*
>
> Cory [E-Lit/12/Specific]: *Eugenics. I was just interested in that. I want to*
> *know more about that, those who were involved. I'd read about it but I*
> *don't know a lot. So, that [query for eugenics] was just pure curiosity.*
>
> Wendy [E-LA/15/Specific]: *There's so much information that I need to*
> *learn more about, and I still don't know enough to say that I'm an expert*
> *in teaching this ... It's something that I'll have to use on a consistent basis*
> *as well so that what I've learned here is not lost.*

Alan's passage above illustrates the personal satisfaction that came with learning,

and in this case, Alan discussed learning about the subject he taught. Cory's passage, too,

exemplifies exploration of material for his own learning. But in Cory's case, the

motivation for learning seemed more driven by the timely opportunity to learn about a

new topic using the VHA collection. These expressed desires for learning constitute the

teachers' intellectual needs. While teaching in general, and content selection in particular,

involve a teacher's presentation of material to a student for the sake of the student's

learning, there is a natural desire to find one's work enjoyable and stimulating. At the

workshop, teachers sought satisfaction in the form of intellectual engagement with the material at hand and with the process of teaching. When teachers found intellectual satisfaction in learning something new or in presenting material to students in a new way, they found stimulation in the content selection process.

4.3.1.**2 Affective needs**

In addition to cognitive-intellectual needs, affective needs were also mentioned by teachers during this study. The stories told by Holocaust witnesses and survivors were wrought with feelings from across the emotional spectrum. Because teachers watched, listened to, and contemplated these stories for hours each day, it was not surprising that the affective aspect of their experience came forth throughout the data. The passages below exemplify some of the ways that teachers described the emotional impact of watching testimonies.

> Lily [SS-H/5/Rough]: *… that story will haunt me. I'll never forget that story. That right now is the one that's really sticking in my mind.*

The emotional responses to the testimonies were not entirely negative. While teachers found the stories of suffering very sad, they also found themselves drawn into survivors' narratives and optimistic about their educational value.

> Mary [E-LA/8/None]: *It's kind of depressing but at the same time it's fascinating.*

> Cory [E-Lit/12/Specific]: *The irony and hypocrisy of such actions disturbed me greatly- and her segment will be very useful and powerful in my classroom.*

However, Carl articulated his own struggle to keep from getting too engrossed in the stories. By consciously staying goal-oriented, he was able to use his time more

productively and find more (and/or better) segments for his lesson plan. In the passage

below, it seemed that Carl placed higher priority on the satisfaction of producing the best

possible lesson plan than on the satisfaction of hearing the outcomes of interesting

stories.

> Carl [H-SS/11/Specific]: *You start watching and ... you want to see, well what happened next. ... You have to be very disciplined and say, "Okay, this will do." ... I try to focus very much on what's going to help the kids. What do I need to teach them better?*

Aside from teachers' emotional responses to the content, other affective aspects of

the content selection process came forth during interviews and free writes. Finding good

material and enhancing lesson plans gave some teachers an emotional boost. On the other

hand, the prospect of having one's work assessed by peers or supervisors was reported as

anxiety-producing. Either way, it was important to teachers to find good content and

construct high-quality lesson plans.

> Jimmy [SS-H/4/Specific]: *It's incredible how much more confident and comfortable I feel with teaching this material, knowing that I've got some excellent stories to back up the things that I'm telling the kids.*

> Wendy [E-LA/15/Specific]: *Someone who supervised your workshop, they'll say, "That's all you did?" ... So, I have to be on a pace. ... It's just that little pressure thing. ... I'm going ...to share this in an open space with the peers in this workshop and it's just that extra pressure of how is this going to be perceived.*

The needs and inclinations of the teachers to have intellectual and emotional

engagement with information and with the process of finding and using information show

how these aspects of the person shaded or shaped the process of interacting with an

information system. The conceptual arrangement and flexibility of the workshop system

for submitting queries and managing results interacted with some of the cognitive needs

described above. These characteristics of the workshop system are described in Section

4.5, below.

4.3.**2 Competencies**

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Competencies

Overview

The teachers' competency levels in three areas were found to contribute to the overall information need context and affect the processes of seeking and selecting lesson plan content. These areas are:

- Topical knowledge,
- Search knowledge, and
- Comfort with media editing technology.

Highlighted findings

- Teachers whose queries were poorly formed or disorganized reported being as satisfied with their workshop outcomes as teachers who used expert-level search techniques.
- Cory [E-Lit/12/Specific], Jimmy [SS-H/4/Specific], and Ray [E-Lit/0/None] reported proficiency with using technology in the classroom, and they saw creating multimedia presentations as integral features of their teaching styles. Unlike the other five teachers, Cory, Jimmy, and Ray saw the digital VHA video segments as potential pieces of cohesive multimedia presentations, rather than stand-alone resources.

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Just as the affective and cognitive-intellectual needs helped to describe and

explain some of the teachers' information seeking motivations, limitations, and

proclivities, so too did some of the teachers' competencies lend important information to

an understanding of the information need context. By identifying a user's strengths and

weaknesses in the context of the information need situation, one can better understand

some of the limitations and proclivities that contribute to the information need and the

thoughts and behaviors that ensue during the information seeking process. From this thread of knowledge can also be derived design considerations that can optimize strengths and compensate for weaknesses. From this study's data arose three areas of competency: topical knowledge, search technique, and comfort with media editing technology.

4.3.2.1 Topical knowledge

One area of competency that influenced the content selection process was the teachers' knowledge of the lesson topic. In the case of history classes, this included knowledge of the historical events and themes laid out in the curriculum. In the case of English, this knowledge included literature (the texts students would read for the course), history (the historical events or themes that connected with assigned texts), and language skills (those listed in the curriculum, and the types of readings and activities that would hone these skills). Topical knowledge could impact *what* was taught (the particular facts, events, themes, and perspectives students learn) and *how* it was taught (the examples, techniques, and media types a teacher uses), both of which had implications for the content selection process. The case boxes below contain examples of topical knowledge's influence on lesson plan content (Carl's story, first box) and lesson plan procedure (Cory's story, second box).

> Carl's [H-SS/11/Specific] workshop lesson plan, "The Development of the Holocaust*,"* illustrated how his knowledge influenced <u>what</u> would be taught. This lesson plan opened with a module called, "Pogroms before 1933," which included two survivor testimony segments that described pogroms in 1919 and earlier. In the overview of "Pogroms before 1933," Carl wrote, "Anti-Semitism was nothing new in Europe, but the Nazis took the pogroms to a new level. The students should be aware of pogroms before the rise of Hitler." Carl, who described

himself as both an historian and a teacher, had taught history for twelve years and earned a Master's degree in history. He also spoke of spending much of his spare time reading about history and watching documentaries on television. Carl's lesson plan illustrated his historiographic perspective, which connected the Holocaust to a longer history of anti-Semitic violence (i.e., pogroms). With a less advanced knowledge of history, Carl might not have known what pogroms were or that anti-Semitism in Europe had a long history prior to the Third Reich. In this way, Carl's selection of survivor testimony about pre-Nazi pogroms could be traced back to his knowledge of history.

Cory [E-Lit/12/Specific]'s lesson plan, "Who Is in Control of Your Mind?," illustrated the influence of his knowledge on how a topic would be taught. This lesson plan was part of a unit on Aldous Huxley's *Brave New World*, and the topic of the lesson plan was propaganda. While Cory had previously used *Brave New World* to teach students about propaganda, he had not previously used the Third Reich and the Holocaust as examples of the possible effects of propaganda, nor had he used visual media.

Propaganda is part of my lesson plan … but I didn't have visuals. … Actually, with the propaganda, I knew that was part of the Holocaust experience, so I sought out propaganda techniques.

Cory's knowledge of the role of propaganda in setting the stage for the Holocaust enabled him to construct an example for his students that connected historical events with a literary theme. Without this prior knowledge, he would not have known to search the Shoah collection for testimony segments about propaganda; his content selection was informed by his knowledge.

The teachers' knowledge levels about the lesson topic were found to affect content selection in two ways. First, the teachers' knowledge affected teaching in that topical knowledge constituted their frames of reference about their topics. The teachers would only be able to convey to students (and seek content pertaining to) knowledge that they already possessed. Second, a combination of the teachers' knowledge of topic, student characteristics, and pedagogy moved them to select content that would help students move toward specific learning goals. The teachers needed to know enough about the topic *and* about the students' information needs to select and present content that conveyed topical information at an appropriate level for student comprehension.

Teachers who knew more about the topics on which they were searching were more attuned to the vernacular of the topic and able to construct more precise queries. Additionally, teachers with deep and/or broad knowledge of a particular subject area – such as World War II history – reported having perceived more gaps in existing curriculum materials than teachers with lower levels of topical expertise. As discussed in Section 4.1.1, above, the gaps that teachers identified in the curriculum became part of their information needs in that the teachers might seek content that would fill those perceived gaps.

4.3.2.**2 Search technique**

All of the workshop teachers had enough search experience to be comfortable with the basic process of searching. Levels of expertise ranged from minimal competence (e.g., wordy natural-language queries, ineffective reformulations) to advanced (e.g., Boolean operators, thesaurus use, insightful reformulations). None of the teachers seemed to significantly change or improve their overall search technique over the course of the workshop beyond adjusting to the workshop system's idiosyncratic functions or incorporating advice from workshop peers and instructors.

Chapter 5 provides in-depth descriptions of the particular processes and techniques observed among the teachers in this study. The concept of search technique warrants discussion in this section because a teacher's level of search competency was found to be an important aspect of the personal profile that shaped the teachers' information need contexts. The extent of a teacher's savvy in formulating queries, analyzing results, and constructing meaningful reformulations showed evidence of some

influence over the nature of the content selection process. The teachers with higher competence levels (Alan [SS-H/1/Specific], Carl [H-SS/11/Specific], and Ray [E-Lit/0/None]) were able to construct precise queries, troubleshoot unsatisfactory results, and glean from the interface clues and associations that deepened their knowledge of the system and its contents. The level of understanding a teacher had about the contents and working of the information system could influence expectations of what could potentially be retrieved. Chapter 5, includes examples of expectations that were formed by Cory [E-Lit/12/Specific], Lily [SS-H/5/Rough], and Ray [E-Lit/0/None], following interactions with the workshop system.

A few of the teachers stood out at either end of the expertise spectrum. By virtue of their appropriate use of query techniques, such as quotation marks, Boolean operators, and addition and subtraction of query concepts to increase precision or recall, Alan [SS-H/1/Specific] and Carl [H-SS/11/Specific] were classified as expert searchers. On the other hand, two teachers – Mary [E-LA/8/None] and Wendy [E-LA/15/Specific] – were classified as novice searchers due to such indicators as inappropriate query reformulations and an absence of appropriate use of advanced query techniques. Examples of Wendy's and Mary's novice-level searches can be seen in Table 5.7 (page 218) and Table 5.14 (page 237), respectively. Carl's expert techniques are exemplified in Table 5.2 (page 193). It is important to emphasize that the expertise of the searcher does not necessarily make for a better or worse experience. All four of the searchers depicted in these examples reported feeling satisfied with their results; they just took very different paths to get there.

4.3.2.**3 Comfort with media editing technology**

The workshop system provided access to digital videos of Holocaust survivors' and witness' testimonies. Compared to analog media such as filmstrips and video tapes, digital media formats can offer a great deal of flexibility in terms of how they are edited and presented in the classroom. However, editing media and incorporating them into different types of media presentations (such as Power Point or Web-based formats) require some level competency with the technologies required for the project at hand. Two of the teachers, Cory and Jimmy, spoke of their regular use of technology in the classroom, where they mounted multimedia productions that combined lecture notes, photos, audio, and/or video.

> Jimmy [SS-H/4/Specific]: *There are some really great Web sites with audio clips of great speeches, ...and I can project the person's image on the screen as [the students] listen.*
> *Availability of multimedia stuff is really, really a big thing with me because I'm a little bit more familiar with that kind of stuff than some of the older teachers, so I have kind of a better advantage with that.*

> Cory [E-Lit/12/Specific]: *I'm adding this to other visual content that I use. I'm very big on using ... Power Point ... That's very powerful and useful in classroom instruction. I have some things already, so my goal is to make them better by adding balance, adding other aspects to the visuals that I'm already using.*

Since these two teachers were already accustomed to and enthusiastic about creating multimedia productions, they were naturally inclined during the workshop to be thinking about ways to incorporate Holocaust survivors' testimony clips into new or existing presentations. Indeed, both Cory and Jimmy had specific plans for the kinds of presentations they wanted to create, as described below. Ray [E-Lit/0/None] also wanted to find ways to create custom presentations with his workshop videos, but as a first-year teacher, his case was somewhat different than the other teachers. While he expressed

technological savvy and a general motivation to edit his workshop videos into custom

presentations, he did not yet have a specific plan for how that presentation would look.

Nonetheless, Ray shared a common inclination with Jimmy and Cory to use technology

to give students a more seamless presentation of Holocaust-related videos.

> Jimmy [SS-H/4/Specific]: *What I'm going to try to do is … start embedding the DVD clips into a Power Point, and the Power Point will be made available on the desktop in a computer lab setting where the kids can guide themselves through it. So what I want is each frame that they look through to be set up in a way where there's kind of a video box, there is a little description of who that person is and what the theme is, whether it's survival, liberation, that sort of thing.*

> Cory [E-Lit/12/Specific]: *[The workshop] will allow me to use MPEG1 digital data which can be infused in a PowerPoint presentation so that the delivery will be fluid and professional.*

> *When we saw the [Shoah Foundation's video productions], and they had the accompanying music and everything. … left us speechless… And that's what I want. And I know I can do it.*

While Jimmy, Cory, and Ray expressed a comfort level with technology in

general *and* an inclination to use it to edit their media presentations, both Cory and Ray

wanted to learn how to link video clips into Power Point. Neither of them had previous

video-editing experience, and they felt like such instruction should have been

incorporated into the workshop curriculum for teachers who wanted to take their media

presentations to this level.

> Ray [E-Lit/0/None]: [Suggestion for future workshops:] *Spend 3 days on a lesson [plan] and one day really, let us build our Power Point, show us how to do the editing, give us the sliders to actually get the video.*

> Cory [E-Lit/12/Specific]: *This program in whole could be improved by having – if it's just a day where it's not mandatory but it's offered – where tech specialists could teach you editing, like how to use, how to take this information and put it in a Power Point presentation. You know, how do you spruce the media up in the classroom?*

159

None of the other teachers in the workshop expressed an emphasis or prior experience with using technology in the classroom, aside from a few mentions of occasional presentations of photos, audio, video, or Power Point slides (although not as a cohesive multimedia production). While these presentations required some use of technology, such as a computer, projector, or DVD player, none of the teachers (other than the three previously discussed) articulated or implied an inclination toward using technology as an integral part of their teaching styles.

The teachers' competency levels with using technology to customize media presentations influenced the content selection process. The ease with which different media formats could be woven into classroom presentations depended on the teacher's comfort level with the technology and media formats that would be needed to mount such presentations. In this study, the teachers were in no position to select one media format over another because the format decision had already been made by virtue of the composition of the VHA.

In situations where the media format is variable, selection criteria might include the ease-of-use of the content relative to the teacher's competency level. If using the content would require transforming a source file into a format compatible with available equipment (such as burning an MPEG-1 file to a DVD), teachers who lack comfort or experience in performing this task might look elsewhere for content that is already in the desired format. On the other hand, teachers with more expertise might prefer to select content in formats that are amenable to customization and integration with an existing presentation.

4.3.**3 Identity**

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Identity

Overview

The teachers discussed among each other how certain aspects of their identity shaped their impressions of and interactions with the VHA testimonies. The only observations of identity's influence on content selection were from Ray and Lily, who reported feeling especially literate about the Holocaust by virtue of their Jewish upbringings.

Highlighted findings

- No findings in this section rose to significant weight.

</div>

Along with the other aspects of person that were explored in this study – needs and competencies – it seemed natural to look at identity, the core of who a teacher perceived herself or himself to be. An important portion of the teachers' professional identities, pedagogical stance, is discussed in Section 4.2.4, above. Teachers talked about other aspects of their identities during the workshop, most frequently in informal conversations with each other during work sessions. Almost all of these aspects of identity, including race, ethnicity, religion, and educational background, were revealed during conversations among teachers about their Holocaust-related perspectives, knowledge, and teaching experience. Some of the teachers shared other aspects of their identities during strictly social conversations, where they talked with each other about their families and communities.

Two of the teachers, Ray [E-Lit/0/None] and Lily [SS-H/5/Rough], mentioned that their background with Jewish families and Hebrew education increased their awareness and literacy with respect to the Holocaust. Ray considered himself to be

somewhat of an expert on the Holocaust, and his primary motivation for attending the

workshop was to explore the testimonies for information about people and places related

to his grandparents, all four of whom were directly involved in the Holocaust.

> Ray [E-Lit/0/None]: *I have, very unfortunately, a very deep understanding. So much so that the first time that I went to the Holocaust Museum, I said, "I don't need to go through this museum." … I didn't even come to this workshop planning on making a lesson. I came to this workshop planning on watching survivor testimony … I was also hoping to have access to my family's videos.*

Ray's expertise showed in the topics and vocabulary of his own queries and in the

guidance that he gave to his workshop peers, such as in this conversation with Alan:

> Alan [SS-H/1/Specific]: *I was just looking at was spiritual resistance. And how … that was a way to hold on to identity and because essentially everything else had been taken away. And so that form of resistance was celebrating the high holidays in secret, those were ways for people to be able to hold onto themselves.*

> Ray [E-Lit/0/None]: *If you search for Yom Kippur and Auschwitz, you'll see a lot of – actually, if you do a search for Yom Kippur and work camp, it may give you something more interesting. Because imagine this is a 25-hour fast, and people were doing it voluntarily while working their entire shifts. And that would probably, I mean that's what, one of my great uncles died because he refused to eat the camp food because he knew it was not kosher and so he refused to eat and lasted about a week in the ghetto in Poland. But my cousin, my grandfather's cousin, fasted Yom Kippur … He fasted because he had to do it. He knew it was Yom Kippur. That was his form of resistance.*

The relatively small amount of evidence in these findings that identity influenced

content selection should not be interpreted as evidence that no influences existed. Rather,

any further relationships between the intricate construct of identity and content selection

are beyond the reach of this study's conceptual framework and methodology.

4.4 Task: Lesson Planning

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Lesson Planning

Overview

Lesson planning, the parent task of content selection, was found to include six activities, which were temporally and conceptually entwined with each other and with information seeking. Much of the information need's texture derives from the outputs and inputs of the other parts of the lesson planning process.

Highlighted findings

- All of the teachers reported or exhibited work on every stage of lesson planning, and every stage of lesson planning related to the content selection process.
- Ray [E-Lit/0/None] was the only teacher who did not experience both directions of influence between lesson planning and content selection (i.e., lesson plan influences information seeking, and information seeking results influence the lesson plan).

</div>

The previous sections have described three layers of the information need context: environment, role, and person. The fourth layer, task, might be considered the one with the most obvious and direct links to information need, information search, and relevance judgment. In the case of this study, the task being examined is content selection, which is inextricably embedded in lesson planning, the parent task.

Content selection is conceived of here as a particular type of information seeking. Therefore, things known about information seeking in general also apply to content selection. Content selection is also characterized by aspects that come from the parent task of lesson planning. Since content selection is done as part of lesson planning, the lesson planning task defines many of the goals and constraints of the content selection sub-task. For example, selected content should help students meet the same objectives that apply to the lesson plan. Content selection cannot be lifted out of its lesson-planning

context, since that context itself defines and drives the content selection process. In this section, each of the ASSURE model's lesson planning steps (Smaldino et al., 2005) are described with respect to teachers' behaviors during content selection at the workshop. The steps are:

- Analyze learners,

- State objectives,

- Select methods, media, and materials,

- Utilize media and materials,

- Require learner participation,

- Evaluate and revise.

There is much more to each of the ASSURE steps than is depicted in this discussion; only those aspects of each step that pertain to practices that were observed during the workshop are highlighted below. As can be seen from the mutual pertinence of content selection and each of the other steps of lesson planning, the process of lesson planning is far from a linear progression of isolated subtasks. One step was observed among the teachers that is not included in the ASSURE model: Identify topic.

4.4.1 Identify Topic

Every teacher at the workshop discussed with some aspect of topic identification, whereby they began with a concept, activity, or segment and identified one or more daily- or weekly-level lesson plan topics. Starting concepts came in the form of units (such as World War II or *Brave New World*), themes (such as tolerance), or learning outcomes

(such as analyzing point of view). In some cases, such as the example with Lily described in the Chapter 5 (Section 5.2.1.3.2**)** teachers started a new lesson plan with an activity idea, then explored the workshop system for possible topics that could be used to implement the activity.

4.4.**2 Analyze Learners**

The teachers were aware that they were selecting content on behalf of the student audience, and they took seriously their charge to find and present material that was well-suited to this audience. In practice, "well-suited-ness" had different facets, and the teachers mentioned attention to these facets during all stages of their lesson plan work. The selection of content involved the implementation of criteria, both as query terms and as selection/rejection criteria. All but a few of the criteria teachers used during content selection reflected the products of their formal and informal analyses of their students:

- What do they need to know?

- How do they best learn?

- What matters to them?

- What can they handle?

The answers to these kinds of questions were embodied in the decision rationale behind each search and each selection or rejection of a segment.

What do they need to know?

This question was addressed on many levels, including the standards and curricula that came to teachers from their schools or districts and the learning objectives that

teachers wrote as they constructed their lesson plans. The passages below depict

impressions and lessons teachers had gleaned about their students through years of

education and experience. These statements reflect the teachers' perspectives on students'

knowledge needs. Each of these needs served as a rationale for a lesson plan or activity,

which in turn, led the teachers to look for content to help meet the need.

> Carl [H-SS/11/Specific]: *What is it I want my kids to know about the Holocaust? And one of the things was that it's not just Jews. That it's different groups for different reasons.*

> Mary [E-LA/8/None]: *I'm dealing with low-income youths who very rarely graduate or go to college, and I want them to understand why is it important not to burn books. Why do you think [the Nazis] took all the top educated people outside of the city and shot them? … I think it's important for students to know that knowledge is power, and the more you know the better it is.*

How do they best learn?

From their training and experience, teachers knew that the manner in which

instruction was to be delivered would have implications for students' successful learning.

Workshop teachers expressed understanding of the need to support different cognitive

strengths and to present instruction in a way that would optimize learning opportunities.

In the passages below, Alan and Jimmy described why they thought presenting audio-

visual media would help students gain greater understanding of the Holocaust lessons

than texts alone.

> Alan [SS-H/1/Specific]: *Especially for young people, I think it's much more personal when you are able to hear it and see it. I think they have more difficulty connecting to it when it's just a text standing alone … A lot of it is complicated for students, especially my freshmen, to be able to really get into it.*

> Jimmy [SS-H/4/Specific]: *One of the things with the lower level kids particularly, they weren't read to at home. Nobody's ever read to them and*

if I can find something that would be entertaining like that and read to
them it's like story time and they'll remember everything. It's the craziest
thing.

What matters to them?

When constructing their lesson plans and selecting content, all of the teachers

expressed desire for material to resonate with students. Resonance happens when the

material strikes a chord with the students, and teachers tried to find those chords by

looking for features in the testimonies that would be important to some aspect of

students' lives. For example, Cory's treatment of the Holocaust in the classroom reflected

his sensitivity to the themes of oppression and intolerance, as they had been experienced

by some of the cultural groups that made up his student population.

> Cory [E-Lit/12/Specific]: *If you're dealing with a diverse population as a*
> *classroom, it's important to discuss and be prepared to deal with other*
> *culture groups that have gone through experiences of oppression, hate,*
> *bigotry, intolerance.*

What can they handle?

Learning about the Holocaust can be emotionally grueling for learners of any age.

Throughout the workshop, teachers discussed the important and delicate balance between

informing their students and overloading their capacity to cope and understand. Carl

hoped that by ending his unit with more positive stories from people who survived the

Holocaust, his students would not experience as much emotional strain. And Jimmy

believed that his lesson should be stretched over a few days so that students would not be

barraged with material about horror and loss.

> Carl [H-SS/11/Specific]: *Ray's point about the emotionally draining*
> *nature of the research is well taken, and I think it explains why so many*
> *teachers try to end the unit with rescuers. I wonder if the way to approach*

the wrap up of the unit is to get the kids to see the significance of the lives of survivors.

Jimmy [SS-H/4/Specific]: *Originally, I wanted to do it as a one-day lesson. But I found testimonies were too rich and too intense just to have as one day. So the testimonies in that regard forced me to make it over the course of 2 or 3 days.*

From these and other components, the teachers constructed profiles of their students' needs, preferences, and abilities. It is likely teachers' analyses of their students were constantly ongoing, updating to accommodate shifts in curriculum and popular culture, as well as deeper learning about students in general and *their students* in particular. During content selection, the teachers could compare the characteristics of an information entity with the student profile and decide whether or not a good match existed.

4.4.**3 State Objectives**

An objective is a statement not of what the instructor plans to put into the lesson but of what the learners ought to get out of the lesson. An objective is a statement of what will be achieved, not how it will be achieved (Smaldino et al., 2005).

Before an instructional unit (of any scale) can be created and delivered, a teacher should decide what the unit's learning objectives are. By articulating objectives, teachers create a touchstone to use throughout the planning and delivery of the lesson. Objectives provide the teacher with a conceptual seed from which to grow the rest of the lesson plan.

Whether directly or indirectly, objectives could feed the teachers' content selection by guiding their attention to topics, activities, and content that would aid in their attainment. Examples of direct connections between objectives and content selection can

be found in Table 4.5, below, which shows objectives from five lesson plans and system

queries that related directly to those objectives.

Table 4.5. Learning objectives and associated content selection queries.

	Objective & Lesson Plan / Module Title	Queries
Carl	**Development of the Holocaust / Pogroms before 1933** The student will be able to accurately trace the development of the Holocaust from pre-1933 to the immediate post-WWII period.	- pogroms Russia pre-1933 - Nuremberg laws - prisoners of war - sobibor uprising - Nuremberg trials
	Development of the Holocaust / Life in the Camps The student will analyze the treatment of victims in the camps and will describe the difference between a work camp and a death camp.	- work camp - factory camp - death camp - camp life
Jimmy	**U.S. Foreign Policy towards the Holocaust** Explain the reasons behind the Nazi's persecution of the Jews and the problems facing Jewish refugees	refugees, Polish
Cory	**Who Is in Control of Your Mind?** SW-be introduced to the concept of propaganda	Propaganda
Mary	**Music and Writing** Students will write a poem or narrative after listening to the music of a Holocaust Survivor.	- music (performance) - music

4.4.**4** Select Methods, Media, and Material

This one step in the ASSURE sequence actually contains three different activities.

These are discussed one at a time, below.

4.4.4.**1** Select methods

This is the stage of lesson planning at which the teacher determines what kinds of

instructional and learning activities will be used to meet the stated objectives. Teachers

came into the workshop with lesson plans at all stages of development, from blank slates

to fully developed, tried and true lessons. Hence, in some cases, the methods had already

been chosen and the teacher came into the workshop ready for the next relevant step,

Select Materials. For example, before the workshop began, Carl knew exactly what he

wanted to teach about the Holocaust and he framed his searching activities quite strictly

around those topics.

> Carl [H-SS/11/Specific]: *What do I want them to know about the Holocaust? … These are the six things I chose. … This is exactly what I want to do, which has I think helped me to search. … If I wouldn't have come in with an idea of exactly what I'm looking for, there are two thousand hours of stuff you could watch, and I'd be floundering all over the place.*

In other cases, teachers found new ideas for instructional delivery methods that

were inspired by testimonies, resources, peer discussions, or presentations of SFI's

educational products. The scope and novelty of these ideas varied with each situation, as

depicted in the two examples below from Lily, who was inspired to build a whole new

lesson plan, and Alan, who added a novel, nuanced topic to his existing plan.

When Lily [SS-H/5/Rough] was working on her first lesson plan, she found a resource with a map of the concentration camps throughout Europe. Her own surprise at the sheer number of camps inspired her to create a lesson plan that introduced students to seven different camps. She believed that from this lesson plan, students would understand the geographic and experiential scopes of the Holocaust. Appendix K shows an abridged version of Lily's "Forgotten Camps" lesson plan, including summaries of four of the 29 segments she selected. This new lesson plan of Lily's included several instructional methods, including a warm-up discussion, an interactive worksheet for viewing testimonies and researching camps, and a "gallery experience" where students would observe creative works from Holocaust survivors and free-write about their observations. Upon learning of the myriad camps and deciding to build her "Forgotten Camps" lesson plan, Lily was launched into an iterative process of identifying potential camps for the lesson plan and viewing segments that describe conditions in those potential camps.

Alan [SS-H/1/Specific]: [Q: Have there been any cases where a segment gave you a new idea for a lesson plan or module?] *Not necessarily for a new lesson but for a new dimension to a lesson. That's when I started coming across the spiritual*

> *resistance. ... I think that would be an example of adding another dimension to something I was planning on doing.*
>
> With his discovery of the concept of spiritual resistance, Alan did not drastically alter his existing lesson plan. Rather, he added spiritual resistance to a list of other forms of resistance that students would research in groups to compare and contrast. Upon deciding to add spiritual resistance to his lesson plan, Alan searched for and selected appropriate segments about that topic.

The examples above depict a few of the ways that the content selection step and the methods selection step interacted.

4.4.4.2 Select media format

This step is not relevant to this study, since by virtue of their participation in the workshop, the teachers had already selected the video media format. While their lesson plans contained media other than the testimonies, the observations of content selection were limited to interactions with the workshop system.

4.4.4.3 Select materials

This lesson planning step was the primary focus of study, which has been referred to in this text as *content selection.* The information search process and decision criteria teachers used during the workshop are discussed at length in Chapter 5. Because the information seeking process of content selection is embedded within the task of lesson planning, it should come as no surprise that these two processes fed into each other. Sometimes a dialog ensued between the two activities with each informing and enriching the other. Figure 4.1 depicts an explanation from Alan [SS-H/1/Specific] of how his

lesson planning and searching activities fed each other through a series of information

encounters and lesson ideas.

Lesson planning

Information seeking

At first it was like, thesaurus, I saw resistance, nonviolent, so that was one of my first searches, and I was so happy to see it there. And so it came up with stuff and that led to then seeing in one of them it had spiritual resistance, it had using education as resistance, and I was like,

Oh, that's interesting!

And it's similar, but it's different at the same time ... so I liked having it as an element of contrast.

So that led to

looking for other types of resistance, maybe it would be good to look at also violent resistance and look at the Warsaw ghetto uprising

because

I think it's important, and I think a lot of students don't feel like there was much resistance, and to kind of debunk that myth.

The more complex parts came

when I found the reading that dealt with all the different types and dealt with the decision that the Holocaust museum put out.

Well now I have enough information

To have groups where they would be assigned to a topic such as resistance in Nazi Germany and they would be able to do research on that and provide a presentation and to be able to use the testimony along with that.

That's pretty much how it evolved ... Last year, [I had] in the back of my mind this is something I want to work on but not really sure how. This came about as far as the workshop, and it's like oh, that's probably going to be a pretty cool way to try to find evidence for what I'm looking for. And that led to different types, more complexity, and it kept on going from there.

Figure 4.1. Interaction between Alan's [SS-H/1/Specific] lesson planning and content selection.

4.4.**5 Utilize Media and Materials**

While this step falls sequentially after content selection, it is still relevant to the content selection process. Among the teachers in this study, there were very few cases where a segment was selected with no particular plan for its use. While this step, as described in Smaldino et al. (2005), is more concerned with the actual deployment of media experiences in the classroom, it is important to note here that *intended* or *expected* use had considerable influence on teachers' search and selection thoughts and behaviors.

As described in the previous section, teachers came into the workshop with lesson plans in various stages of completion. Those with more complete lesson plans, whose workshop selections were intended to enhance or extend existing activities, had a sense of how their segment selections would be used. The following three case boxes contain examples of use plans that teachers had before the workshop (Cory and Lily) and ones that came about during the workshop (Carl).

Cory [E-Lit/12/Specific] came to the workshop in hopes of finding segments to add to an existing lesson plan about the novel, *The Color of Water,* which he had previously taught several times. The novel's main character was a Jewish immigrant who had to deal with issues of racial discrimination in mid-twentieth-century Harlem. Cory's searches related to racism, segregation, religion, and inter-faith marriage: all themes that he had explored with his previous students. Cory selected three segments for this lesson plan, and he intended to embed the video clips into an existing Power Point presentation.

The students have to do a character analysis as a writing assignment. ...So in preparing them for the character analysis, I'm going to show them the presentation. They'll get to see testimonies from African Americans and now Jews and use that info to help build a character analysis on these two characters.

The only change in Cory's *Color of Water* lesson plan was the addition of Jewish people's narratives to the presentation. In order to make this happen, Cory knew he would have to use media editing software to create the clips that he wanted and import them into Power Point.

Like Cory, some of Lily's [SS-H/5/Rough] content choices were guided by an existing use plan. Very early on in her conceptualization of the "Forgotten Camps" lesson (Appendix K), Lily knew that she wanted her students to watch the segments in the computer lab and answer worksheet questions. Even though it did not evolve until the workshop, this use plan was specific enough that she began generating the worksheet questions prior to her final segment selections. Indeed, the questions themselves (i.e., the intended use) provided some of the key criteria that enabled Lily to select from among many available segments.

I guess at first I was just listening to see what they had to say. And then, I started creating questions. And then, to answer those questions I was searching ... I was looking for testimony would help answer those questions for the kids.

Whereas well-formed use plans could steer focus toward content that meets specific criteria, there was also room for brand new use plans to develop *a posteriori,* subsequent to interacting with the information system.

In contrast with Lily and Cory, one of Carl's [H-SS/11/Specific] use ideas was inspired by a particular segment he saw while looking for content about Kristallnacht.

[The interviewee] was five years old, was hiding in his grandparents' bedroom while a mob came through the house and destroyed things. And I am thinking, okay what if I just get pictures of me when I was five, or say to the kids, "Bring in a picture of you as a five year old. I want to put it in a slideshow." ... It's like, "That could be you. That could be somebody you know; that could be your sister; that could be your brother; that could be your parents." And try to get them to see, or at least be more empathetic of the whole idea.

Not only did this segment fulfill Carl's existing criteria, such as describing the Kristallnacht pogrom, it also gave him a new idea for an activity to get students more engaged with the material.

In these cases and many others, the *Select* and *Utilize* steps occurred hand-in-hand. The only caveat is that the use was planned, rather than implemented. There were a few cases where segments were selected without an existing use plan, but in every one of these cases, the rationale for selecting the segments was that they were particularly good

but the workshop's time constraints prohibited the teachers from finding an immediate

use for them.

> Wendy [E-LA/15/Specific]: *I was curious as to what would be the conditions that would cause their immunity to be so compromised, where they could die of something as benign as dysentery. And I just wanted to find the relativity of those conditions versus the conditions that are taking place in our world now. [This links to] a future [lesson plan]. … I want to somehow find a connection. So I haven't yet reached that one, but it's just a thought ahead of me right now.*

> Jimmy [SS-H/4/Specific]: *Maybe I'll use more of today as kind of, "Alright, if I can't necessarily fit this in the lesson, it would still be a good clip to have."*

4.4.**6 Require Learner Participation**

As described in Smaldino et al. (2005), this step of lesson planning is where the

teacher should ensure that some aspects of the instruction are interactive, in order to

optimize students' learning experience. Similar to the examples of use, above, instances

of learner participation in workshop lesson plans were only *planned* for implementation.

Planned activities both influenced and were influenced by content selection. Plans for

learner participation influenced content selection when a teacher had an activity in mind

and turned to the workshop system for content that could support the activity. Content

selection influenced learner participation when a teacher came across content that

inspired the creation of a new activity. Examples of each of these types of influence are

depicted in Figure 4.2 and Figure 4.3, below.

Summary
Lily's lesson plan, "Voices in History," implemented an idea she had before the workshop, to have students find photos of themselves that depicted similar activities to those seen in pre-war photos of European Jews. She identified some themes that should be depicted in the photos and wanted to find testimony of survivors talking about the same themes. The segments she selected would reinforce the objective to, "compare and contrast their lives with the survivors."

The Impetus
I've always really liked the idea of using pictures from when I did the Holocaust museum workshop. So now I've been able to create this lesson … I've been looking for testimony on different topics from the survivors. Topics, like what their pre-war family life, relationships, valuables, activities that they did, and then have the kids each be assigned to one of those themes. … I think if I could start off with that, that would really pull them in.

The Activity
- Hand out one photograph to each student. … They are to find a picture of either themselves or a family member that closely matches the one they have been given. They are to bring in the photographs.
- I will have students share their photos with the person sitting next to them by sharing their answers to the following questions:
  - What evidence in the photo given to you suggests that life was "normal" or "ordinary" for the Jews prior to the German occupation?
  - What did you discover as you looked through your own family's photos in relation to those the one you were given?
  - How do the photos show similarities between you and your family with those in the photos from the past?
- After sharing the photos, students will be asked to place their photos on the classroom bulletin board. The title will be: Linking the Past with the Present.
- Next, … we will be doing further work on linking the past with the present by listening to testimony of Holocaust survivors in a group project. I will then hand out to students index cards that will have the following themes:
  - Family
  - School
  - Music and Arts
  - Friendships
  - Sports/Social Clubs
  - Discrimination

Content Selection: System queries dictated by activity procedure (step 4, above)
- family life
- after school activities before the war
- the arts
- school
- music
- discrimination

Figure 4.2. Example of learner participation's influence on content selection.

Summary
Mary's lesson plan, "Music and Writing," was inspired by a testimony she saw of a Holocaust survivor playing a dirge on his harmonica, as he did during his wartime imprisonment. From this testimony, she developed the idea to use words to describe two different musical performances.

The Impetus & Content Selection: Monday afternoon
He was one of the ones that [workshop instructor] *Doug talked about. And it was the first person that, when we went upstairs, that I looked up. ... He played the harmonica. And because I teach creative writing, I have to use creative things to get students interested, like music, drama, poetry. And I just like the idea of music. And I went upstairs and looked it up and it was definitely brilliant because he survived in the camps by playing on a harmonica for the Gestapo.*

The Activity
Let students listen to [segment with] harmonica playing without the visuals. Let students use their sense to describe what they hear. Do the same with a contemporary Blues musician. Then share both bio's with the students.

Figure 4.3. Example of content selection to inspire learner participation.

4.4.7 Evaluate and Revise

This step includes evaluation on two levels: assessment of student learning achievement, and assessment of methods and materials (Smaldino et al., 2005). These two levels are discussed separately. For clarity, assessment of student learning is referred to here as *assessment,* and assessment of methods and materials is referred to as *evaluation.*

4.4.7.1 Assessment

Compared with other aspects of lesson planning, assessment of student learning received little attention during the workshop. Organized by subject taught, Table 4.6 shows the number of lesson plans created by each teacher and the number of lesson plans that included assessments.

Table 4.6. Numbers of lesson plans and assessments, by teacher.

		# Lesson Plans	# of Plans with Assessments
Social Studies	**Alan**	2	1
	Carl	1	0
	Jimmy	1	0
	Lily	2	1
		SS total: 6	SS total: 2
English	**Cory**	3	3
	Mary	2	0
	Ray	1	1
	Wendy	4	4
		Eng total: 10	Eng total: 8

Of sixteen total lesson plans created during the workshop, ten included some text describing assessment. None of the assessment plans included any rubric or thorough description of assessment criteria. None of the planned assessments included elements that related to specific segments, hence, no observable evidence of content selection's influence on assessment. Further, none of the teachers exhibited evidence that their search/selection criteria bore any relationships with planned assessments. Hence, no observable evidence of assessment's influence on content selection.

One should not assume that the dearth of assessment-related activity at the workshop indicates any of the teachers' lack of emphasis on student assessment. First, all of the teachers felt a sense of urgency to optimize their use of time at the workshop. Since their access to the workshop system was limited to the workshop week, everyone was focused on content selection and those aspects of the lesson plan that had more direct interaction with content selection (such as objectives and procedures). Second, since the workshop was conducted at the University of Maryland, none of the teachers had access

to the resources they might customarily have had at arm's length while working in their classrooms.

4.4.7.2 Evaluation and revision

All of the eight teachers described some aspect of evaluating instructional methods and media. None of the teachers showed any indication of seeing their lesson plans as static documents. Student feedback, performance on assessments, and self-evaluation are some of the mechanisms by which teachers gathered feedback about a given instructional experience. Teachers spoke of seeking and receiving evaluative feedback at all stages. While they worked on lesson plans at the workshop, they thought critically about their work as they went along, going back and iteratively making enhancements. During the delivery of lesson plans, teachers reported that they would evaluate the experience and pay attention to students' formal (performance on assessments) and informal (in- and out-of-class discussions) responses. Finally, after a lesson plan was delivered, teachers would reflect on the strengths and weaknesses and make notes for future improvements. Lesson plans evolve from year to year, and all of the teachers seemed eager and open to opportunities for feedback and improvement.

How did evaluation and revision relate to content selection? Most of the teachers' workshop enrollment was for the express purpose of revising their lesson plans by adding new content. The teachers whose workshop experience opened by revising existing lesson plans were Alan [SS-H/1/Specific], Carl [H-SS/11/Specific], Cory [E-Lit/12/Specific], and Jimmy. Lily [SS-H/5/Rough] and Wendy [E-LA/15/Specific] already taught units on the Holocaust, and they were both adding new lesson plans to

these existing units. Mary [E-LA/8/None] and Ray [E-Lit/0/None] were the only teachers who came to the workshop without specific lesson plans in mind.

> Jimmy [SS-H/4/Specific]: *I sort of already had a sense of what I have done in previous years in teaching the Holocaust. I kind of wanted to add to that. I've got some really good materials, so I just wanted to enhance those materials. I've got a really good sense of the questions the kids have, so I want to support them with answers through the testimony. And that's really how I came across creating what I've done at the workshop.*

> Cory [E-Lit/12/Specific]: *With Brave New World, I had a loose idea, it's part of my lesson plan, propaganda is part of my lesson plan, the ethics of cloning is part of my lesson plan, but I didn't have visuals, I didn't have movie media files to supplement it.*

As described above, the information need context of teachers who were selecting content was influenced by many aspects of the instructional task within which the content selection occurred. An analysis of the lesson planning steps depicted in the ASSURE model (Smaldino et al., 2005) shows examples of interactions between content selection and every other step in the process.

4.5 Information Source

+---+
| **Information Source** |
| |
| *Overview* |
| |
| The content and mechanisms of the workshop system influenced |
| teachers' goals, expectations, strategies, tactics, and outcomes |
| during content selection. |
| |
| *Highlighted findings* |
| |
| • Findings pertaining to the influence of the workshop system on |
| searching and relevance judging are highlighted in Chapter 5 and |
| Chapter 6, respectively. |
+---+

The layers of the information need context that have been described –

environment, role, person, and task – are all directly experienced by a person before she

or he begins the information seeking process. The final layer of the context, *Information*

source, is external to the user until information search begins. Once the teachers

connected with the workshop system (information source), characteristics of the system

had observable effects on the ever-dynamic information need context. In this way, the

information source was a part of the situation within which information seeking –

specifically, content selection – occurred.

The information source at the workshop can be thought about on two levels, each

of which made contributions to teachers' information need context. The first, the

workshop collection, includes the information *content* of the workshop system: videos of

interviews with Holocaust survivors and witnesses, and surrogates thereof. The second

level of the information source is the retrieval system, the *mechanisms* by which teachers

interacted with the system, including query capabilities, retrieval and ranking algorithms,

and user interface. Chapter 3 provides a series of screen captures and description of the

workshop system.

From analyzing teachers' discussions of and interactions with the workshop

system, it was found that the information source's content and mechanisms played an

important part in the shape and character of three aspects of the information seeking

process:

- Goals and expectations,

- Strategies and tactics,

- Outcomes.

Due to the iterative nature of information seeking, a timeline of one teacher's system-influenced experiences might plot examples from any of these categories at any point in time. Nonetheless, these three aspects correspond with the sequence of events during information seeking, and any iteration through the process started with goals and/or expectations, was implemented through strategies and tactics, and resulted in an outcome. Teachers' interactions with the workshop system are described in detail in Chapter 5. The current discussion is meant to highlight specific aspects of information search interactions that illustrate the information system's role in shaping the information need context.

4.5.1 Goals and Expectations

Due to the nature of the study, teachers' motives and expectations for using the workshop system were not the same as they would be in the regular school environment. Teachers came to the workshop under special circumstances, and it would be rare indeed that teachers would otherwise find the opportunity to spend a full week working so deeply in one realm. For example, it might be that without so much dedicated time, teachers would have set less ambitious goals for selecting content, since during a normal week they would have been responsible for a greater variety of tasks and topics. With this consideration in mind, it is still useful to explore what effect the system's content and mechanisms had on teachers' content selection.

4.5.1.**1 Content**

The workshop system, which contained a portion of the VHA, was the centerpiece of the

teacher workshop. Teachers took a week out of their summer breaks for the opportunity

to access an exclusive and specialized database while planning lessons and participating

in development sessions about Holocaust teaching. Teachers knew what they were

coming to do, and they knew roughly what they would be using in the sense that they

knew VHA was a database of Holocaust survivor testimony. This knowledge about the

purpose of the workshop and the content of the collection established an initial frame of

mind for the teachers (i.e., the themes of the Holocaust, lesson planning, and teaching

tolerance were highlighted in promotional materials). This frame of mind set a

preliminary set of goals and boundaries in the teachers' minds. Teachers' workshop goals

are discussed in Chapter 5, Section 5.1.1.

Throughout the workshop, teachers' goals and expectations were refined in

response to exploration, successes, challenges, and surprises. Some of these came from

the content of the workshop system, most notably in the cases where teachers came

across a concept (in the thesaurus) or a testimony that inspired ideas for new instructional

activities. The thesaurus served several informational purposes that helped shape

teachers' goals, expectations, and knowledge of the system, including:

- Summarizing collection contents,

- Exemplifying the scope of indexing terms,

- Describing the logical arrangement of concepts represented in the collection's

  information entities.

4.5.1.**2 Mechanisms**

The system's mechanisms were not observed to have any influence on teachers' goals, but some of the system's mechanisms affected teachers' expectations. For example, teachers were encouraged to use the thesaurus to explore the concepts and terminology that were used to index segments. Wendy took to using the thesaurus as a way to confirm whether a topic of interest was indexed in the collection.

> Wendy [E-LA/15/Specific]: *My process for selecting: It started with an idea. And then I found other materials to build upon it and then I found the testimonies to supplement.* [Interviewer prompt for more detailed description.] *First I would go through the catalog to see if there were subtitles and then – you know the blue catalog that we had?* [Interviewer: The thesaurus?] *The thesaurus, yeah I would go through the thesaurus before I actually developed a plan I would go to see if the testimony was there.*

Wendy used the presence or absence of a concept in the thesaurus to shape her expectation of whether the concept was available in the collection.

4.5.**2 Strategies and Tactics**

Strategies are the overall approach to a search, while tactics are the individual techniques or mechanisms that are used to implement a strategy (Vakkari et al., 2003; Wildemuth, 2004). As an interactive information search environment, the workshop system communicated to teachers some of the available mechanisms (through query widgets in the interface) and content (through document surrogates presented in query results). Some teachers used trace evidence of the system's matching and ranking mechanisms to inform their strategies for formulating or refining queries (see Chapter 5, Section 5.1.4.3.2). The more a system can do to depict the aspects of information entities that

caused them to be retrieved by a query, the better the user's ability to formulate precise, well-informed queries.

In the workshop system, terms held in common between queries and surrogates were bolded in the display so that teachers could identify at a glance the nature of the retrieval match. This mechanism helped Carl [H-SS/11/Specific], who was interested in learning about Soviet prisoners of war. His initial query, *Soviet prisoners*, returned segments about Soviet civilian prisoners of concentration camps as well as prisoners of war. Carl was able to see this distinction quickly when he browsed the segment summaries in his results list because the bolding of *Soviet* and *prisoners* in the summaries made it clear that the terms were used in senses other than the one he intended. Carl used narrowing tactics to hone the results set; he added words and later quotation marks to his query to make it more specific: *"soviet prisoners of war."* Table 5.5 depicts the entire sequence of reformulations for this query in Chapter 5 (Section 5.1.4.2).

4.5.**3 Outcomes**

The outcome of an information search interaction is contingent on both the content of the collection and the available mechanisms for retrieving it. Chapter 5 provides examples of successes and frustrations that teachers experienced as a result of their queries. The mechanisms for querying and reviewing documents were used differently by teachers, with some using targeted, query-oriented, and/or advanced techniques whereas others relied less on query mechanisms and more on mechanisms for browsing and exploring, such as segment surrogates and the media player as a browsing mechanism. Many of the

content-related outcomes were a result of the relevance judgment process, which is

described in Chapter 6 and Chapter 7.

Chapter 5: Findings. Information Search Process

Our ineptitude in getting at the record is largely caused by the artificiality of systems of indexing.

– Vannevar Bush, 1945

The information search process of teachers during the workshop included a predictable collection of stages and activities, which coincided with the processes described in other studies of information seeking (Soergel, 1985; Ellis, 1989; Kuhlthau, 1991; Ellis, D. Cox, & Hall, 1993; Marchionini, 1995; Bates, 1998; Vakkari & Hakala, 2000; Lenell, 2006; Makri, Blandford, & A. Cox, 2008; Taylor, 2009). In general, teachers started the week with browsing and exploratory searches to familiarize themselves with the workshop system, the collection, and the thesaurus. The teachers were also getting to know each other, gathering their thoughts into the realm of Holocaust teaching, sketching out their lesson-planning strategies, and beginning to map aspects of the testimony collection to aspects of their planning and teaching. By the end of Tuesday afternoon, the teachers had had several instructional sessions and had spent four hours using the workshop system. By the time of their first interviews on Wednesday afternoon, the teachers all felt comfortable using the system and were ensconced in their lesson plans and searches for content.

The following two sub-sections discuss the two major facets of the information search process that came forth from data analysis. The first facet deals with conceptualizing the information need, the information system, and the information search

process. The second facet deals with <u>actualizing</u> the information search process. These two facets, while discussed in separate sections, should be conceived as closely enmeshed. Both have cognitive and behavioral aspects. The conceptual organization of this section of the framework deviates considerably from the information search process as conceived in the study's preliminary conceptual framework. Specifically, the original framework took a largely step-oriented perspective of information search, organized according to the functions and subprocesses of the information search process described by Soergel (1985) and Marchionini (1995). Upon reviewing the data – especially the narrative data found in interviews and work session transcripts – it became clear that teachers' information search processes were characterized by certain types of thoughts and activities, which describe content selection as an information search process. The conceptualizing and actualizing facets do not replace the activities, stages, subprocesses, and functions of the information search process that have been described in previous work (Soergel, 1985; Ellis, 1989; Kuhlthau, 1991; Marchionini, 1995). Rather, they provide a framework for understanding each function of information search as being textured by the extent to which it combines the conceptual/mental/intellectual with the implementational/phenomenal/instantiated.

5.1 Conceptualizing

The first facet of the information search deals with conceptualizing aspects of the searcher's process. Several aspects of conceptualizing have to do with changes in the teachers' knowledge states as a result of the information search process. Information searching includes a cycle whereby a seeker uses knowledge to initiate search, which

189

results in an output of information (ranked results, document surrogates, actual documents) from which the searcher updates knowledge. From this new knowledge state, the searcher either halts the search process or continues searching, perhaps using the new-found information. This new information can pertain to the topic of the information need or the characteristics of the information retrieval system, including the content of the system's collection. Data-grounded examples of these learning-related aspects of the information search process are described below, following descriptions of two other conceptual sub-processes of information search: goal setting and query formulation.

5.1.**1 Importance of Goal Definition**

> ### Defining Goals
>
> *Overview*
>
> At both the task level (lesson planning) and the search level (content selection), setting goals was found to be integral to establishing a sense of focus for organizing and executing system interactions.
>
> *Highlighted findings*
>
> - Mary [E-LA/8/None] and Ray [E-Lit/0/None], who came to the workshop without specific lesson plans in mind, experienced disorientation and difficulty establishing enough sense of purpose to navigate the VHA. The other six teachers, who came to the workshop knowing which lesson plans they would work on, reported no such feelings of floundering or disorientation.

There was a clear association between the nature of teachers' pre-workshop goals and expectations, and the sharpness of their focus during the process of creating lesson plans and finding suitable content. On the Friday before the workshop, the teachers were asked to spend ten minutes answering two questions:

1. What do you hope to see covered at the workshop?

2. What do you expect to accomplish this coming week?

Excerpts from each teacher's answers to these questions are presented in Table 5.1,

below.

Table 5.1. Portions of teachers' answers to pre-workshop focus questions.

Alan [SS-H/1/Specific]	Pre-workshop answers not completed, although in interviews Alan stated that he intended to work on a follow-up to his unit on Gandhi's resistance with examples from WWII and the Holocaust.
Carl [H-SS/11/Specific]	A unit on the Holocaust that will last approximately three 90-minute class periods … one day on the run-up to the holocaust …, one day on the Holocaust itself …, and then a day on the aftermath.
Cory [E-Lit/12/Specific]	Add visual materials to one of my lesson plans for *The Color of Water*.
Jimmy [SS-H/4/Specific]	Find some oral histories that deal with two aspects of the Holocaust … (a) survivors first contact with Americans at the end of the war, and (b) some insight on what the next few months and years were like, putting together a new life
Lily [SS-H/5/Rough]	Create various lessons on the topics of WWII, the Holocaust, and tolerance. … Incorporate resources that I already use along with new resources. … Create a lesson that accomplishes the Howard County curriculum objective to: "Research the Holocaust experience and other violations of human rights during World War II. (907.08) 1.2.4"
Mary [E-LA/8/None]	… new approaches and different ways of designing lesson plans … innovative ways to present Holocaust materials. … Using databases that I have not had access to. … Design a lesson plan that I … can present to the students I work with
Ray [E-Lit/0/None]	I really hope that the workshop participants focus less on lesson preparation and more on experiencing the survivor testimonies. … Help our students access these experiences not for vocabulary building or codified learning objectives, but for all of us – teachers and students – to become better human beings.
Wendy [E-LA/15/Specific]	Access the oral history interviews so that I can build effective lesson plans. … Share it with my colleagues at the District level. … Develop lessons that show relativity to other concepts and disciplines. I also hope to learn more about the experiences of the Holocaust survivors. [In her pre-workshop interview, Wendy's goals were expressed more specifically: To enhance her existing lesson plans on Elie Wiesel's *Night,* and to have students respond critically to non-print text.]

Teachers who had clearly defined goals to create lessons and select content were

more organized in their search sequences and experienced less frustration than teachers

whose goals were not clearly defined or not aligned with the workshop's purposes. As

described in Chapter 4, teachers' information needs were defined in large part by aspects

of the parent task of lesson planning. Teachers with well defined parent tasks ended up

with well defined information needs. The opposite was true of teachers with poorly

defined parent tasks. For example, Alan, Carl, and Cory provided very specific and

content-oriented answers to the pre-workshop focus questions, whereas Mary and Ray

did not. The goals stated by Alan, Carl, and Cory were clearly reflected in their first few

workshop searches and the relationships of those searches to their lesson plans. The

quotations from Alan's and Cory's Monday afternoon free writes indicate their

confidence and sense of purpose. Table 5.2 depicts a sequence of Carl's statements and

system interactions that show how his sharp focus and expert-level search technique

worked in concert to move him most efficiently toward his goal.

> Alan [SS-H/1/Specific] [Monday freewrite]: *I feel that I have a pretty strong purpose/objective already set-up for my lessons, but I had no idea if it would be difficult to find testimonies. From my limited time searching today, I feel pretty confident that I will be very successful finding testimonials on both tolerance/discrimination and non-violent resistance.*

> Cory [E-Lit/12/Specific] [Monday freewrite]: *Today I learned how to use the VHF Thesaurus and Video Software developed by the USC Shoah Foundation … I learned much and hope to continue to gain more insight into this research program … The tools are useful and easy to implement.*

Table 5.2. Search sequence and rationale from Carl [SS-H/11/Specific].

Carl: Goal-directed, expert searcher. The Development of the Holocaust [Lesson plan] / Pogroms before 1933 [Module]		
Query & Time stamp	**Behavior**	**Query rationale**
pogrom (1:48)	Spent 15 minutes listening to 5 segments.	Wanted to find segments about pre-Third Reich pogroms for his lesson plan, "The Development of the Holocaust."
pogrom –kristallnacht (2:02)	immediately reformulated to …	*When I found pogroms, I found, since I was looking for pre-war pogroms, pre-1933 pogroms particularly, I kept coming up with November pogroms and Kristallnacht. And so I got rid of them.*
pogrom –kristallnacht –november (2:03)	Spends 45 minutes listening to six unique testimonies. The last 15 of these 45 minutes were spent re-listening back and forth between two testimonies, both of which he added to his lesson plan.	
nuremburg [sic] laws (2:50)	NA for this example.	With enough material for the pre-1933 pogroms, Carl moved on to the next item in his Holocaust chronology.

Author summary and analysis
The process outlined above involved 62 minutes of work time over the course of Monday afternoon. Carl submitted the initial query with a particular concept in mind that he wanted to incorporate into his lesson plan. Carl was conscientious in his strategy to stay on task at all costs: *You have to come in with a clear idea and you have to be very disciplined and say, "Okay, this will do." "This is perfect for him talking about Kristallnacht," and then don't worry about what happened to him in the camp.* His ability to use advanced search techniques to refine his query made it possible for him to stay on task without wasting too much time picking through noisy result sets. Not only did Carl appropriately use the Boolean NOT in the form of the "-" symbol, he also quickly identified the correct terms to associate with the NOT in order to focus the results set.

In contrast with Alan and Cory, Mary's and Ray's stated workshop goals focused on exploring the testimonies and collaborating with other teachers. They each experienced a sense of floundering for much of the workshop, during which they searched and explored testimonies without a firm sense of what they were looking for. Their experiences are described in detail in the following two example cases.

Mary [E-LA/8/None]

Mary's perspective on the workshop was that the testimonies would be the central source of inspiration for lesson plan topics. Her strategy was to immerse herself in the workshop environment, and through collaboration with other teachers and exposure to testimonies, she felt confident that lesson ideas would come to her. On Monday afternoon, one of the workshop instructors told Mary about a survivor who played harmonica during his interview. Upon hearing of this segment, Mary's first task was to create a lesson plan for an activity that connected music with creative writing. She finished this first lesson plan early Tuesday afternoon, and then she immediately started searching for segments for a new lesson plan on propaganda. This time, Mary's lesson plan topic was inspired by one of the testimony compilations that the workshop group had viewed that morning, during which a Holocaust survivor described having witnessed a book burning. This concept resonated with Mary enough that the rest of her workshop selections were in various modules of a propaganda-themed lesson.

Some of the people in the movie today talked about signs, parades, book burning, and I want to do something to put all of this together. ... It's reflecting on situations where the way people speak to you or the words people use are impacting your life the same way as propaganda, signs, boycotts.

The titles of the Propaganda lesson's modules were:
- Book Burning,
- Pyramid of Hate,
- Incorporating Literature into a Study of the Holocaust via a Reader Response Activity, and
- Signs & Symbols of the Holocaust.

Despite the relative speed with which Mary found ideas for new lesson plans, she felt like she was floundering. While being open to new ideas allowed Mary to find inspiration from any source, she found herself with more ideas than she could

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comfortably manage, leaving her feeling a bit scattered and out of control.

I guess by Tuesday afternoon, I was starting to panic because I was getting so engrossed with the testimonies ... I had all these great ideas, and I didn't have any kind of order to my ideas, it was kind of chaos.

Even after creating the Propaganda lesson plan as a central theme with which to work, some aspects of the modules of the lesson plan had little connection with each other or with the central theme. Table 5.3 shows a chronologically ordered list of each segment Mary added to a lesson plan, along with the lesson plan title and the query that returned the selected segment. See Appendix J for the chronologies of all eight teachers.

In the chronologies of the other seven teachers, each lesson or module was dealt with separately, except for few cases of one-off segment adds near the end of the week. In contrast, each segment Mary selected went into a different module than the last, until Thursday morning. The last eight segments Mary selected, from Thursday afternoon through Friday, went into the main lesson plan rather than being organized into the modules. This suggested that by Friday, Mary was more focused on grabbing good segments than on organizing the lesson plan. This scattered work pattern reflects the sense of floundering that Mary expressed at several points in the workshop, such as, *I feel like I'm all over the place.* Even though the amount of content she produced and the time span during which she produced it was commensurate with the work of other teachers, Mary's verbalizations and system transactions suggested the important difference between her work and theirs was in how structured and systematic their work was relative to hers.

Table 5.3. Chronological list of segments added to Mary's [E-LA/8/None] lesson plans.

Day	Time	Query	Segment Summary	Lesson/Module
			Hopping from module to module with each segment.	
Mon-day	2:45	Hxxx Rxxx playing harmonica	HR plays liturgical music on a harmonica.	Music & Writing
Tuesday	2:13	Burning Books	Speaks of the anti-Jewish propaganda which was posted in his city. He recalls the boycott of Jewish businesses and the book burning which he was required to watch. Recalls the "brown shirts" who were a very conspicuous presence in L.	(Book Burning)
	3:36	library reading	Recites two Yiddish poems which he wrote while in the Czestochowa ghetto and gives a rough English translation.	(Incorporating Literature …)
	3:39	library reading	Painting by XX. Reads a poem she wrote about her Holocaust experiences.	Propaganda
Wednesday	10:48	Propoganda [sic]	Discusses how Nazi propaganda and anti-Semitism affected him. He talks about how the Arrow Cross beat up and humiliated Jews. Tells that kids and neighbors used to beat him up. He notes he would come home with black eyes and a bloody nose.	(Pyramid of Hate)
	11:48	Higher Education	Speaks of life for her family during the Hungarian occupation. She mentions there was a quota placed on Jewish students in schools. Talks about her lack of awareness of events in Germany and Poland.	(Book Burning)
	3:28	Intelligencia [sic]	Speaks of the armbands her parents had to wear during the German occupation. She recites a poem she wrote about the experience after the war. Teports her father was arrested and tells how her mother secured his release. Tecalls the second time her father was arrested by the Gestapo. She explains why her mother was also arrested while attempting to obtain his release.	(Signs & Symbols)
	3:35	Education in the Ghetto	Mentions her brothers. She talks briefly of her family's move to the Kamionka ghetto. Tells of conditions and daily routines in the ghetto. She speaks of the closing of schools and remembers being taught German. Describes roundups in the ghetto.	(Book Burning)
	3:52	The Intelligensia [sic]	Describes the treatment of Jews after the Germans occupied Kamionka in 1939. He discusses the restrictions placed on Jews and speaks of raids against the intelligensia. Tells how his uncle and cousin were killed and mentions another uncle who was taken to Majdanek.	(Pyramid of Hate)
s r	10:56	Hxxx Axxx	Talks about the jewelry business in which he worked and later purchased. He	(Pyramid of

Day	Time	Query	Segment Summary	Lesson/Module
				Adding segments to catch-all lesson plan, rather than to targeted modules.
			tells of his post-retirement work teaching Russian immigrants. Speaks of his first wife and their two sons.	Hate)
	10:58	Hxxx Sxxx	Clarifies her reasons for wanting to tell her experiences. She notes she never felt she was a survivor until recently. Relates what her understanding of genocide is, and states what needs to be done to prevent it.	(Pyramid of Hate)
	11:03	Signs and Symbols	Recalls hearing soldiers on the streets singing anti-Semitic songs. She sings one of the songs she heard.	Propaganda
	11:10	Signs and Symbols	Recalls the Anschluss and the reaction of the citizens of Vienna. He comments on the use of Nazi signs and symbols by the civil population. Notes the negative change in treatment of the Jews.	Propaganda
	12:31	Propoganda [sic]	Czechoslovakian newspaper featuring anti-Jewish propaganda in 1941.	Propaganda
	2:08	"Hxxx Axxx"	States he was born Hzz Azz on …, in …, Germany. He describes the area in which he lived and focuses on the layout of his apartment. Mentions his role during the air raids that occurred once the war had begun.	Propaganda
Friday	2:09	Shoes	Reflects on the necessity of shoes in the camps. He explains how he and a friend began to trade shoes they had made for extra rations in Kaufering, Lager II. Briefly speaks of the conditions he faced while performing forced labor in the camp. He describes the housing conditions in Kaufering, Lager II. He touches on the German practice of assigning registration numbers to the prisoners.	Propaganda
	3:36	Shoes	Recalls that she saw the corpses of prisoners who had electrocuted themselves at Birkenau. She talks of her frequent depression. Describes the miserable living conditions. She remembers each corpse was searched each time for a pair of shoes that fit.	Propaganda
	3:37	Brundibar	Tells of being introduced to music by her teacher in the children's home. Focuses on the production of the children's opera "Brundibar" in Terezin and speaks of H …, R …, and R… being involved in the production. Mentions sharing her excitement about her role in the opera with her mother.	Propaganda
	3:38	Brundibar	Talks about "Brundibar" being used for Nazi propaganda purposes. She focuses on two of the songs from "Brundibar" and stresses the importance of music in the ghetto inhabitants' lives. Expresses her feelings when she was listening to the opera performed in the United States.	Propaganda

Ray [E-Lit/0/None]

In keeping with his vision that the workshop would *focus less on lesson preparation and more on ... the testimonies*, Ray's first two days of searches involved exploring testimonies for Holocaust-related topics of his own interest and using his knowledge to help his teammates formulate queries. In his words, *I spent a lot of time just listening to testimony and just interacting with Cory and Alan and helping them ...because if I couldn't be a help to myself, I might as well be a help to other people.* Before long, Ray felt isolated from the other teachers, whose work revolved around planning lessons and matching content based on student characteristics. In his free-writes and interviews, Ray expressed the cost of his lack of direction:

(Monday): *It is evident that the most effective way to have come into this workshop would have been with a concrete unit into which we could fit survivor testimonies. ... It's very hard to do this without any direction. ... I'm just not sure what I'm looking for yet.*

(Tuesday): *My discussion with Lisa today was enjoyable but I still feel directionless with my searches. I am not convinced. In fact, I believe I will not leave this workshop with any sort of lessons.*

(Wednesday): *I came to this workshop not having any clear idea of where it would fit, and it was very frustrating that everyone else was having so much more success, and I was just kind of idly meandering and wiling away the time because I didn't have a clear focus for searching.*

Ray experienced a turnaround Tuesday afternoon and Wednesday morning. On Tuesday, Ray had a work session with Lisa, the workshop instructor who specialized in Holocaust education. Lisa, also an English teacher, suggested that Ray look at the Canterbury Tales, some of which carry anti-Semitic themes. This idea became the seed for Ray's successful creation of a lesson plan.

(Wednesday): *So I sought out that tale today, and ... the whole assignment, the whole activity that I'm putting together kind of flowed. ...But it took a lot of anguish, a lot of frustration.*

Ray created his lesson plan Wednesday morning and spent the rest of the day filling out the lesson template and viewing segments related to some of the themes of the tale, including pogroms, blood libel, anti-Semitism, and Catholicism.

Ray and Mary both experienced similar senses of floundering and frustration, which were rooted in a lack of pre-formulated lesson topics. There was an important difference between them, which affected their overall levels of satisfaction with the workshop experience. Ray did not come to the workshop with the express purpose of creating lesson plans. He wanted to interact with other teachers and explore aspects of the Holocaust that related to his biographical connection and intellectual curiosity. Ray left the workshop without having fully accomplished these goals. He expressed regret that the workshop fell short of his expectations of interpersonal contact and technique sharing. Additionally, Ray found throughout the week that his vision of the workshop and his personal goals were not matched with the other participants, whose goals were more strongly oriented toward independent lesson planning. Mary also wanted to interact with other teachers, but her goals were ultimately oriented toward creating lesson plans; she just did not initially know what the lessons would be about. By listening to testimonies with an open mind and interacting with workshop colleagues, Mary was able to more closely meet her expectations. She created two lesson plans, and she reported having learned a great deal from her teammates about planning and teaching.

Each of the other six teachers came to the workshop with specific topics, standards, or lesson plans they wanted to work on. All of the teachers, except for Carl [H-SS/11/Specific], created additional lesson plans or modules that were inspired by information they encountered during the workshop, either through testimony or discussions. But the incoming search goals, which comprised some portion of the teachers' information needs, served as the teachers' entry points into the collection, the thesaurus, and the system. For Mary and Ray, their search goals came to them as

suggestions from workshop staff (the harmonica player for Mary and the *Canterbury Tales* for Ray). Unguided exploration of the testimonies failed to supply them with ideas that could be transformed into lesson plans. This suggests that when a teacher's entry to an information system was guided only by curiosity about the content, that teacher would be unlikely to find anything meaningful *unless* the system could have guided the teacher with suggestions and examples.

5.1.**2 Transforming Information Need into Query**

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Transforming Information Need into Query

Overview

Teachers' queries to the workshop system were almost always mono-dimensional, topical representations of multi-topical or multi-dimensional information needs. The connections between queries and underlying information needs could be seen by comparing teachers' queries with the rationales they described during stimulated recall sessions. Workshop queries were found to represent the teachers' expectations of which aspects of their information needs might be represented in system surrogates.

Highlighted findings

- Some queries were found to be more direct representations of the information need than others. The more direct a representation, the shorter the semantic distance between the query and the topical dimension of the information need. Examples of direct and indirect queries were seen from all of the teachers.

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As described in the literature review (R. Taylor, 1962; Bates, 1989; White & Roth, 2009), there is a process of transformation, often cyclic, from the innate information need into the search-box query. This process occurs incrementally throughout the information seeking process, beginning with the perception of an information gap, then moving to the decision to engage in information search and the selection of an

information system, and continuing through any number of iterations of query, evaluation, selection, and rejection. The findings of this study include examples of some aspects of transformation that the teachers experienced at the workshop.

The teachers were asked during interviews to describe the rationale behind their queries. These narrative descriptions provided a richer description of the information need than the query alone. Comparing queries with their associated rationales provided a glimpse of the transformation that connected the query with the need. Table5.4 shows how some of the teachers' queries connected with their rationales.

The most common type of transformation occurred when a teacher generated a word or phrase for a topical concept that would indicate potentially relevant segments. This transformation involved condensing all aspects of the topical information need into one concept. Some queries combined multiple concepts, but these were in the minority. The queries that resulted from these transformations represented only the topical aspect of the information need, leaving out other aspects such as length, language, theme, and expressive power. These mono-topical queries comprised the vast majority of queries that were submitted by teachers at the workshop.

The concept represented by the query may have related either directly or indirectly to the topic of the underlying information need. An example of a direct relationship between query term and information need is Carl's query, *"camp life,"* which he hoped would retrieve descriptions of day-to-day life in concentration camps. Jimmy's query, *"history of anti-Semitism,"* was a more indirect representation of his need for, *"...reasons, propaganda, rhetoric that Europeans had used over centuries."* While both of these queries required some transformation in the searcher's mind from visceral need

to query terms, the conceptual distance between Carl's need and query was shorter than the distance between Jimmy's need and query. The topic of Carl's information need aligned directly with one of the most salient phenomena of the Holocaust: life in concentration camps. On the other hand, Jimmy's information need topic was less directly related to the collection's core topics. Rather, Jimmy was looking for information and perspectives related to events that led up to the Holocaust, not events of the Holocaust itself.

Behind all queries is the searcher's implicit expectation that something about the query might match something about the collection. Some teachers expressed awareness that the matching and ranking processes were driven by the degree to which words in the query matched words in the segment surrogates. To the extent that teachers were aware of the system's matching procedure, they might have been more inclined to try to transform the information need into query terms that would be likely to match the surrogates' terms. Or, a teacher might have theorized that an unsatisfactory retrieval set was due to a query-surrogate mismatch, rather than the absence of relevant segments in the collection. For example, on the Wednesday of the workshop, the teachers spent one hour using a version of the retrieval system whose only indexing was based on interview transcripts that were generated by automatic speech recognition (ASR) technologies. When Ray [E-Lit/0/None] discussed his interactions with the ASR system, he theorized that the scant results his queries returned were due to the inability of ASR to recognize the spoken forms of some of his query terms, such as *pogrom, matzo,* and *blood libel.* Despite a dearth of hits using ASR, Ray felt confident that these concepts could be found via the human-indexed retrieval system.

Table 5.4. Connections between teachers' queries and rationales.

Teacher	Query	Lesson Plan / Module & Teacher explanation	Connection from author's analysis
Lily	• Activities • After school activities • Movie theaters • After school jobs • dances • music	**Voices in History** *I started seeing things about … organizations that they had belonged to. I thought, did they go to the movies? Or to the theater? So that's when I started doing this. … Maybe you could find some jobs they had, and the kids could relate to that… After-school activities before the war didn't find anything. Then I thought well maybe if they … had after-school dances because when I was back up here … one person spoke about school dances.*	Lily is trying to think of developmentally or culturally meaningful activities that her students might have in common with survivors. Lily had already seen segments where some activities were mentioned, so she had a reasonable expectation that she might find other such discussions. The challenge lay in thinking of which activities and query terms would be fruitful.
Carl	• Work camp • Work camp procedures • Dachau procedures • camp life • work camp	**Development of the Holocaust / Life in the Camps** *What I'm looking at is, what was it like in the camps? …That comes out almost in all of the segments … [Students] know the camps where the gas and the cremation and everything. But most camps were work camps. … I want them to get a more nuanced and textured understanding of the camp experience.*	This series of queries represents a natural, direct match between information need and collection contents (as represented by segment surrogates). Carl literally wanted to find segments about work camps, so he tried *work camps* as his first query. After looking at segment information for the first five retrieval results, Carl tried the query, *work camp procedures*, presumably because he believed that a camp's procedures would be helpful in describing camp life. He next searched for procedures in a specific camp, then he tried a different phrase for roughly the same topic, *camp life*. After a lunch break, Carl returned to the original *work camp* query, and spent more time looking at results, this time watching several segments and ultimately selecting one for his lesson plan.
Jimmy	• history of anti-Semitism	**U.S. Foreign Policy toward the Holocaust / 10 Things You May Not Have Known about the Holocaust** *I was looking for … reasons, propaganda, rhetoric that Europeans had used over centuries. … more of the stories and the myths and the lies that were passed along. But what I was looking for was*	Jimmy's rationale describes a need for examples of anti-Semitic rumors and propaganda from the years preceding the Holocaust. Even though the narrative description of his need included words such as, "propaganda," "rhetoric," "myths," and "lies," none of these words were incorporated into his query. Instead, he chose the broader concept, *history of anti-Semitism*

		...like back during the plague, a lot of Europeans ...would claim that the plague started because Jews were poisoning the water wells. You know, things like that I was looking for.	(not a thesaurus descriptor), presumably under the assumption that it would be a more likely match with segment surrogates than any of the more specific concepts that expressed the heart of his information need. In this way, Jimmy's query term is indirectly related with his underlying information need. He transformed the elements of his need into a concept that should be more compatible with the information system. This was the only query Jimmy submitted about this topic. He looked at metadata for two of the returned results, viewed one of those, and added it to his lesson plan. In an evaluative review of the segment he wrote, *"talks of anti-Semitism in Hungary prior to the rise of Hitler in 1933, dealing mainly with jealousy of Jewish accomplishments."*
Cory	• Jews and Blacks • Jews and Negro • Negro • gentile marriages • racism • intermarriages • Inter Marriages • Jews and Civil Rights Movement • Jews and African Americans	**Past Experiences and Cultural Dissonance** *Jews and blacks– because that's what the book [The Color of Water, by James McBride] deals with. ... I wanted to know about the relationship between Jews and blacks because in the book, and just from personal experience, I know that there was been discrimination of Jews toward blacks and I don't understand how that could be when Jews themselves experienced such a negative oppression. ...Even in the book, McBride's mother talked about she doesn't even understand how her father ... would treat white people so great, but when black people came to his store, he would overcharge them, he would tell them 'get out,' he would accuse them of stealing and all types of things. It was almost like he was bought into the American mentality of that time. ...And so I just tried to use different words. Gentile marriages- that was because that was what they considered Ruth to have done. It was an interfaith marriage, which caused her to be ostracized. She married outside of her race, her religion. ...I found some ... but it wasn't specific as I needed it to be ... Racism- was just another thing when I was trying to just*	With these queries, Cory is looking for segments where interviewees discuss themes and experiences that exemplify the themes of a book he is teaching, *The Color of Water*, by James McBride. In this book, the Jewish immigrant protagonist faces angst, isolation, and discrimination as a result of her marriage to a black man in the middle of 20th-century America. Her struggles involve race, religion, community, family, and identity. There are two obstacles that complicate query formulation in this situation. First, Cory's topic is nuanced and complicated. Cory chose to represent his topic in terms of the ethnic groups of interest (Jews and African-Americans) and the major social forces behind the book's themes (racism and intermarriage). Second, each of the more salient elemental concepts of Cory's topic (African-American, Jewish, and intermarriage) could possibly be identified with any of a number of synonymous terms. Without consulting the thesaurus or one of the workshop staff, Cory could try dozens of permutations of his query and still miss the lion's share of potentially relevant material. The query, *Jews and the Civil Rights Movement*, likely represents a reasonable expectation that interviewees'

	find… all of this is specific to black/Jew relationships … Inter-marriages.	discussions of the Civil Rights movement might include some discussion of African-Americans. Since many of the interviewees were Jewish, it would also be reasonable to expect either an implicit or explicit Jewish perspective on Civil Rights. The only segment that Cory found that directly touches on any of the book's themes – religion, immigration, and identity – was not retrieved by any of these queries. It was from an interviewee whom Cory saw in one of the video productions that was screened at the workshop.

* - Thesaurus descriptor. Only one term from this table's examples was a thesaurus descriptor.

5.1.**3 Learning about Topic**

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Learning about Topic

Overview

From interacting with the thesaurus, the surrogates, and the testimonies, the teachers gleaned new information about topics related to and beyond their queries. Sometimes teachers incorporated newly learned information into lesson plans; other times learned information became part of teachers' knowledge base.

Highlighted findings

- No findings in this section rose to significant weight.

</div>

Since the information search process exposes people to information, it seems natural to expect that searchers might learn something as they move through the process. This new knowledge can affect the process in any of several ways, which might motivate the searcher to continue, refine, or stop searching. The teachers found new information at several points in their system interactions, including the segments themselves, segment surrogates, and the thesaurus.

Teachers' topical learning sometimes fed directly back into the information search process and/or the lesson plan:

> Alan [SS-H/1/Specific]: *Spiritual resistance was not something I had an idea of until I saw that in the thesaurus. So that was really nice because I never would have, it never would have crossed my mind, to be honest. So I mean, that was a really nice piece and I think that the students will really find that part interesting.*

In the passage above, Alan described his satisfaction at having identified a new concept, spiritual resistance. He had been browsing the thesaurus for descriptors about resistance when he discovered spiritual resistance. This concept became an important part of his unit on resistance. Alan spent 90 minutes browsing and watching segments about

spiritual resistance, and he added two of these segments to his lesson plan. Not only did

he identify good content to present with his lesson plan, he enhanced his own knowledge

of the lesson topic. Other examples of learning from the thesaurus are provided below.

Jimmy's information seeking and lesson planning were also altered by new

information when he learned for the first time of displaced persons camps. He discovered

the term in the thesaurus during the first search session on Monday, and he spent the rest

of that afternoon exploring concepts and segments related to displaced persons. His

lesson plan included a module called, "10 Things You May Not Have Known about the

Holocaust," and displaced persons camps were among the ten items.

Sometimes topical learning enhanced the teacher's knowledge without necessarily

feeding directly back into the information search process or the lesson plan. Most of the

teachers discussed the benefit of having learned more about Holocaust history and

experiences, even when that knowledge did not appear in any lesson plan.

> Cory [E-Lit/12/Specific]: *Eugenics* [his query] - *I was just interested in that. My knowledge. I want to know more about that, those who were involved. I'd read about it but I don't know a lot. So, that was just pure curiosity while I was exploring the program.*

> Jimmy [SS-H/4/Specific]: *There's a lot of enriching information I'm getting for my own benefit and just that I can pass on to the kids that I won't necessarily need to use another video clip for. But it just really improves my understanding of different perspectives.*

> Lily [SS-H/5/Rough]: *Learning about new things, about the topic of the Holocaust that I never knew before, it's been really beneficial to me as a teacher.*

The passages above illustrate that the information need should not be seen as a

vacuum, where the searcher is just the embodiment of an information task, forsaking all

other aspects of his or her situation. Rather, the whole person searches for information,

presumably with the primary intent to fulfill the information need yet also with other wants and needs beyond the immediate task. Teachers who found the search task to be stimulating and engaging at multiple levels had richer and more meaningful interactions with the retrieval system. This better experience might have helped them feel more positive about delving more deeply into the system's functions and vocabulary, more patient about refining queries and exploring results, and more open to potential avenues to serendipity, topical learning, and even re-conceptualization.

5.1.**4 Learning about System**

> ### Learning about System
>
> *Overview*
>
> Teachers at the workshop used three types of interaction to learn about the content and mechanisms of the retrieval system:
>
> - Exploration,
> - Trial and error, and
> - System analysis.
>
> *Highlighted findings*
>
> - Wendy [E-LA/15/Specific] was the only teacher who did not exhibit at least one type of learning interaction. She seemed to take every results set at face value and relied much more heavily on browsing than on targeted search.
> - The teachers who used all three learning interactions (Alan [SS-H/1/Specific], Jimmy [SS-H/4/Specific], Carl [H-SS/11/Specific], and Ray [E-Lit/0/None]) were the teachers whose incoming search proficiency was more advanced than the others.
> - System analysis was only used by advanced or expert searchers.

As described above, teachers' ongoing learning of topical information informed and enriched the information search process. Another kind of learning – learning about

the information system –also helped teachers progress toward finding relevant content for their lesson plans. By using analytical and exploratory thoughts and behaviors, the teachers accumulated data about system contents and performance. These data were used to refine mental models and interaction techniques over time, or to troubleshoot isolated incidents of dissatisfaction.

Three types of system learning are described in this section:

- Learning by exploration,

- Learning by trial and error, and

- Learning by system analysis.

Learning by system analysis occurred in combination with both of the prior two types. For this third type of learning, the emphasis is on the system elements that contributed to learning, rather than the user behaviors.

This study makes no estimate of the veracity of information that teachers learned during their system interactions. It is quite possible that teachers gleaned lessons from their system interactions that were misguided, incomplete, or incorrect. The current discussion is meant to describe the study's finding that teachers picked up pieces of information from a wide span of system features and interactions, and some of this information was integrated into the teachers' knowledge states about the system and how to use it. In the passage below, Mary identified her experience of a major benefit of system mastery: system transparency.

> Mary [E-LA/8/None]: *I just really like the idea of how easy it is to manipulate the database system. It's not complicated. By the third day, which was yesterday, I felt like I was clearly comfortable with it, and I was able to sort of step back from the research and sort of get the lesson plan worked on. And I was able to multitask and do the sort of research and the lesson plan at the same time.*

As "working" the information system became more and more second nature, teachers were able to dedicate more of their cognitive faculties to conceptualizing their topics, evaluating search results, and bridging their information search process with the lesson planning process.

5.1.4.1 Learning by exploration

As with many tools, the best way to gain mastery of a novel information system is to use it. At the workshop, teachers were given a brief demonstration of the workshop system on Monday morning. Their first opportunity to use the system was Monday afternoon, when they had two hours to work independently. Most of the teachers used their lesson topics as the source of an initial connection between their knowledge and the system. From that point, they experimented and browsed, with the intention of building a sense of familiarity and confidence with the workshop system.

> Alan [SS-H/1/Specific]: *Maybe I'll just … type in protest and see what happens. So there was a lot of just playing around with it, especially the first day. That was completely just, it wasn't really searching with, I mean there was obviously a purpose because there's something I'm trying to find, but it was more of I just wanted to see what kind of stuff is going to come up when I put this in.*

> Mary [E-LA/8/None]: *The first day, I really got carried away with [the system] and really didn't do much of anything else … I was familiarizing myself with it, getting used to it.*

> Jimmy [SS-H/4/Specific]: *The first day or two did more to help me figure out how to search. … It was more fine-tuning the way I used my time rather than giving me new ideas for what to put in the search box.*

Whether they intentionally explored the system or not, the teachers gradually built a sense of the system's features, including the information display, the metadata scheme,

and the oral history interview format. The teachers who consciously took an exploratory attitude to searching saw their first hours with the system as a time to set the stage for more efficient searching later on.

5.1.4.2 Trial and error, Query reformation

In addition to exploratory interactions, teachers engaged in trial and error. Entered into less intentionally than exploratory interactions, trial-and-error interactions occurred when a teacher did something with the system that yielded unexpected or unsatisfactory results. When faced with a disappointing results set, the teacher could either abandon the search topic or reformulate the query. Query reformulation contributed to teachers' learning processes as they worked with the system over time. Not every trial-and-error interaction necessarily brought deeper learning about the information system. But when a trial-and-error iteration was followed by a reformulation, the reformulation could have been the application of knowledge gained from the previous formulation.

Table 5.5 shows a series of trials and reformulations from Carl [H-SS/11/Specific]. The passages in the table's "Sample results" column are snippets taken from the 1-2 sentence summaries that were shown on the main query results screen. The snippets were selected to illustrate the different contexts in which Carl's query terms appeared throughout his searches. Figure 5.1 is a screen capture of what Carl would have seen after his first query, *soviet prisoners*.
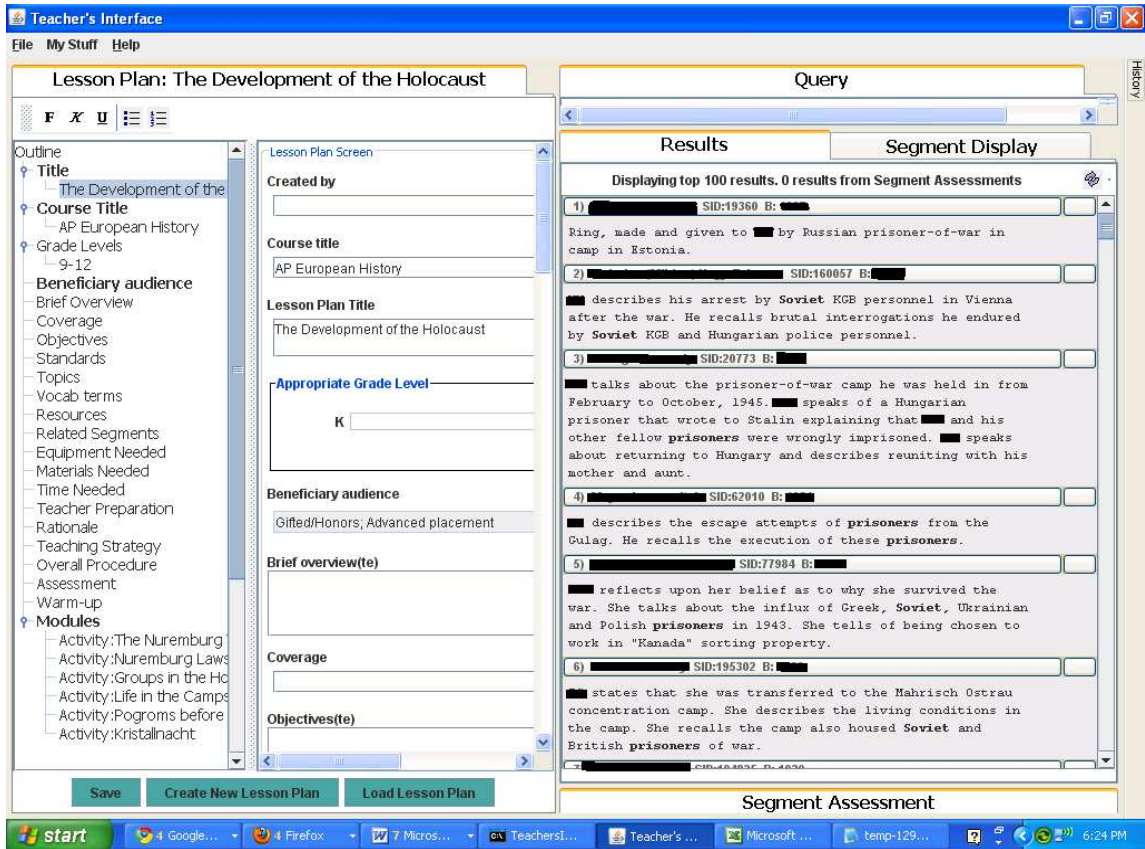
Figure 5.1. Screen capture of results for Carl's 'soviet prisoners' query.

In some cases, teachers reformulated a query even though the initial results set was satisfactory. In these cases, the teacher was combining query reformulation with exploration, using different formulations for the same topic as a way to increase recall or experiment with permutations. Through some combination of system feedback and a user's analysis of the situation, greater understanding can emerge about relationships among information need, query, system capabilities, and knowledge representation.

Table 5.5. Example of trial-error-reformulation sequence from Carl. Underlined segments were added to lesson plan.

Query (Time)	Rationale	Sample results, numbered according to their rank in the results list	User behavior and Author analysis	
			Clicked for more info	*Watched*
soviet prisoners (11:32)	As stated in interview: *Somebody ... was saying that it's important to look at the difference between how Soviet prisoners of war are treated and anybody else, because the Soviets are treated a lot worse.*	**100+ results** 2. Describes his arrest by **Soviet** KGB personnel in Vienna after the war. 4. Describes the escape attempts of **prisoners** from the Gulag. 5. She talks about the influx of Greek, **Soviet**, Ukrainian and Polish **prisoners** in 1943.	10	1
			The system retrieved segments with either term, or both terms, occurring separately or as a phrase. The ranking algorithm did not give greater weight to segments with both terms or with the terms as a phrase.	
"soviet prisoners" (11:40)	Wanted segments about Soviet prisoners, so he used quotation marks to specify the query as a phrase.	**43 results** 1. Recalls that he lived in a barrack that contained many **Soviet prisoners**. 6. She mentions that **Soviet prisoners** of war also worked on the farm.	*Clicked for more info* 1	*Watched* 0
			Even as a phrase, *Soviet prisoners* can refer to a broader range of prisoners that the ones Carl was interested in learning about.	
prisoners of war (11:41)	Specified that he wanted segments about prisoners of war in order to eliminate segments about other types of prisoners.	**100+ results** 4. She recalls the camp also housed Soviet and British **prisoners of war**. 5. Comments on the badges that were used to identify the different **prisoners** in the camp.	*Clicked for more info* 5	*Watched* 1
			Without the *Soviet* concept in the query, results described POW situations of all nationalities.	
soviet prisoners of war (11:50)	Added the term *Soviet* to *prisoners of war* to exclude segments about POWs of other nationalities.	**100+ results** 8. Recalls different groups of **prisoners** in **Soviet** concentration camps after the **war**. 11. Mentions medical care after her rescue by **prisoners of war**. Talks about a Yugoslav soldier who became a lifelong friend.	*Clicked for more info* 25	*Watched* 6
			These results had the same problem as the results of the first query. Segments with some or all of the query words in any combination were comingled.	
"soviet prisoners of war" (12:07)	Put the query words in quotation marks to specify they should be searched as a phrase.	**19 results** 2. He recalls he worked with British, French, and **Soviet** POWs. 3. She tells of her contact with Czech and **Soviet prisoners of war** in the camp.	*Clicked for more info* 0	*Watched* 0
			After 3 minutes (perhaps browsing the list of 19 results), Carl switched topics and searched for *work camp*.	

5.1.4.3 Learning by system analysis

As discussed above, exploration, trial and error, and query reformulation can brought learning into the content selection process. Just as different types of user activities have instructive potential, so too do different aspects of the information system. As revealed during interviews and group discussions about the workshop search process, some teachers took an analytic approach to reasoning out queries and reviewing search output. These analyses incorporated teachers' understanding of system elements, including collection characteristics, matching algorithm, and ranking algorithm. Some teachers' impressions of these different elements had implications for their subsequent thoughts and behaviors with respect to the workshop system. Learning by system analysis occurred through the processes described above (exploration, trial and error, query reformulation), through attention to system feedback during other types of interactions, and through active reasoning about the system's role in search outcomes. Examples are provided below of teachers' analyses of different aspects of the system.

5.1.4.3.1 Learning about collection characteristics

As teachers learned more about what the system held, they developed more realistic search goals and became better able to describe their information needs in terms that aligned with collection contents. Also, expectations about the types of information entities available led some teachers to attribute empty results sets to poorly formed queries rather than dead ends. Understanding of the collection came from the characteristics of the system's information entities.

Table 5.6. Workshop system's information entities and their elements.

− Testimonies, and the segments that comprise them, − Metadata describing interviewees, testimonies, and segments:

− Structured biographical summaries of interviewees,
  − Custom thesaurus of terms related to Holocaust-related concepts, including
     persecution, culture & religion, geography, etc.,
  − Testimony summaries (350-500 words, written by indexers),
  − Segment surrogates, including:

− 2-3 sentence segment summaries,
    − Segment scratchpad entries (moderately detailed notes and summaries,
      unstructured, unformatted, many abbreviations),
    − Descriptors (one set assigned by human indexers, another set sometimes
      assigned by automatic classification),
    − Transcripts (computer-generated, available for small minority of segments),
    − Teacher-generated segment descriptions (very few available), including:

− Description and notes,
      − Teacher-assigned descriptors (from thesaurus),
      − Grade-level recommendation,
      − External literature or resource match,
      − Vocabulary words,
      − Expressive power notation (binary).

Each of these information sources was easily accessible though the system's information retrieval interface.

In the following two case boxes, Carl and Alan analyzed how the workshop's collection composition affected the probability of finding segments that would meet their information needs.

> Carl [H-SS/11/Specific]: *Not as much … about … the Nuremberg Laws as I thought there would be. Don't know if it's just the 1000 [testimonies] we happen to have. … I would guess that a lot of the survivors are from Poland rather than from Germany. … For the Nuremberg Laws, you'd have to find a German Jewish survivor who would be able to talk about it rather than a Polish Jewish survivor.*
>
> Carl's analysis combined his knowledge of history and demographics with his knowledge of the workshop collection, which included roughly 1,000 of the 52,000 testimonies that were recorded by the Shoah Foundation. He reasoned that

the workshop collection must have contained a preponderance of testimonies from Polish Jews compared to German Jews. Not only did Carl glean some information about the collection contents, this interaction also got him thinking about the difference in experience of Jews from different countries.

Alan [SS-H/1/Specific]: *I'm trying to find something specific; what I'm looking for is narrow. If I was looking for something about Kristallnacht it would be very easy because … you can have much more choice and selectiveness as far as the criteria that you would have.*

In the passage above, Alan explained that his topic (nonviolent resistance) was quite narrow, resulting in a smaller pool of available segments than topics that might have been discussed by a greater number of survivors (such as *Kristallnacht*). Alan added a layer of analysis to this assumption, reasoning that one could employ more and/or finer criteria in selecting segments about popular topics. Because the available pool of segments discussing nonviolent resistance was relatively small, Alan felt like he could not be as selective as other teachers with more populous topics.

5.1.4.3.2 Matching and ranking algorithms

Rather than taking for granted that their queries would adequately represent the information need and that the system would "understand," some teachers made efforts to test the system's interpretation of different query formulations (synonyms, morphologic variants) and techniques (quotation marks, Boolean operators) by examining qualities of the results and comparing these qualities with the query. In the workshop system, query terms were bolded wherever they occurred in segment metadata so that users could easily identify the placement of query terms.

> Alan [SS-H/1/Specific]: *I tried a bunch of different ways. I mean, at first it was, I used the thesaurus. … I tried in quotes. And quotes did work the best. And so then I tried other words.*
>
> Carl [H-SS/11/Specific]: *I want a Google-type search is what I'm realizing. If I type in Nuremberg trials, I don't want everything that has Nuremberg to come up first and then trials to come up second and then Nuremberg trials together to come up third.*

One of the most reliable predictors of search success was whether teachers selected query terms from the thesaurus or generated their own terms. Through comparative analysis, Jimmy was one of the teachers who learned this lesson early on.

> Jimmy [SS-H/4/Specific]: *A lot of times, when I would just kind of try to go through it quickly, I'd pick a term like liberation … If it wasn't that complete term out of the thesaurus, it wouldn't warrant the best results. And I figured as creative as I can be with what I want, I should follow the book. I think that got the best results.*

Not all of the teachers revealed such active analysis of the system's retrieval and ranking mechanisms. For example, Wendy [E-LA/15/Specific] never ventured to verbally analyze or describe relationships between her queries and results. When asked about specific queries, Wendy always reported satisfaction with her searches, even when asked about queries that yielded no usable results. Table 5.7 depicts a comparison of Wendy's interview responses with her query behaviors, then offers analysis to suggest an explanation for the discrepancy.

Table 5.7. Example query sequence with no apparent system analysis.

Teacher's System Transactions & Satisfaction Report	
System Transactions	**Satisfaction Report (Interview 8/10/2006)**
Query 1 Jewish social network in concentration camps [submitted 8/9/2006, 11:40:08 a.m.] ***Results review*** Top 100 results returned. Wendy clicked to view metadata for the top-ranked segment. ***Outcome*** No segments selected. ***Query 2*** Jewish social network in ghettos [submitted 8/9/2006, 11:41:40 a.m.] ***Results review*** Top 100 results returned. No specific segments clicked for metadata. Results list browsed for less than 30 seconds. ***Outcome*** No segments selected	Question: *I see you were looking for social networks in concentration camps, social networks in ghettos. Why did you look for those topics?* Wendy: *Because I wanted to find – this led me to the idea of developing the plan on filial piety and finding examples of compassion.* Question: *I see. So this, did you find what you were looking for in this search?* Wendy: *Yes.*

Author Analysis			
While the two specific queries that Wendy discussed in her interview did not result in any segment views or lesson plan selections, she did try several different query formulations on the same topic over the next 24 hours. Her subsequent searches having to do with "filial piety" were:			
Query	**Time spent with results**	**Segments clicked**	**Segments added to lesson plan**
Helpers of Jews	41 mins.	4	0
Jews helping other Jews	13 mins.	2	1
sharing food and caring for others in the camps	7 mins.	1	0
filial piety within concentration camps	38 mins.	4	2
Wendy's overall information need was met: She found segments to include in her lesson plan, "Filial Piety." Her reformulated queries did not include any concepts or phrasing that appeared in the results of prior queries, suggesting that she used her own devices to construct the reformulations rather than berrypicking from results, extracting terms from the thesaurus, or consulting a workshop instructor. These behaviors (internally generated reformulations) and attitudes (non-critical, non-analytic assessment of query performance) suggest that Wendy never actively sought to analyze or interpret the workshop system's retrieval or ranking mechanisms. Rather, she used her own analysis of the topic to generate alternative queries and ultimately achieved a result with which she was satisfied.			

None of the discernable variables in this study – such as gender, subject taught, number of searches, or number of lesson plans – correlated with differences in the amount or style of system analysis. In fact, regardless of whether they used system analysis, trial and error, exploration, or any other learning or searching techniques, all of the teachers reported satisfaction with the segments they found to add to their lesson plans. Of course, these evaluations were made in ignorance of the potential realm of non-retrieved, relevant segments. But regardless of capabilities, styles, or any external, objective measures of performance, each teacher found a way to work with the workshop system and to populate lesson plans with relevant segments in the allotted time.

The conceptualizing dimension that has been depicted above incorporates teachers' thoughts and behaviors related to understanding and depicting the information need in the context of interacting with the workshop information system. Conceptualizing involves setting goals, examining and communicating the information need, and enhancing knowledge about the topic and the information search process. The next dimension, actualizing, complements the conceptualizing dimension in that the activities and processes that defined this dimension implemented the goals and knowledge that come from the conceptual side of the process. The thoughts and behaviors of actualizing also feed back into the conceptual representation.

5.2 Actualizing

This section describes the processes and techniques by which teachers actualized their content-selection-related needs and knowledge by interacting with the workshop system. As described in this chapter's introduction, actualizing and conceptualizing are

not separate processes. Rather, they are two facets of the information search process that highlight different lenses through which information search may be viewed and understood. Actualizing focuses on implementation: the approaches, behaviors, and techniques that comprised the teachers' information search process. Table 5.8 includes descriptive statistics of teachers' query numbers and segment views.

Table 5.8. Summary statistics of queries and segment views, by teacher.

	# Queries	Unique segments viewed	Segments viewed per query	Segments selected	Selections per view	Average view time per segment (m:ss)	Average view time per query (m:ss)	Total hours viewed (h:mm:ss)
Alan	115	82	0.71	27	0.33	2:04	6:41	4:00:40
Carl	140	101	0.72	32	0.32	2:31	6:35	6:22:04
Jimmy	97	90	0.93	20	0.22	2:21	7:02	4:20:17
Lily	127	235	1.85	61	0.26	1:47	12:37	7:00:00
Soc. Studies avg.	**120**	**127**	**1.05**	**35**	**0.28**	**2:11**	**8:14**	**5:25:45**
Cory	47	53	1.13	9	0.17	3:27	16:00	4:56:22
Mary	85	47	0.55	19	0.40	4:05	5:16	4:24:55
Ray	138	72	0.52	5	0.07	2:06	6:21	4:20:01
Wendy	45	39	0.87	13	0.33	4:01	8:53	3:04:57
English avg.	**79**	**53**	**0.78**	**11.5**	**0.24**	**3:25**	**9:07**	**4:11:34**

5.2.1 Types and Number of Searches

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Types and Numbers of Searches

Overview

Teachers' queries were analyzed on several different dimensions, and interactions were found between teachers' subject disciplines and the number and topic of submitted queries.

Highlighted findings

- When classified into an inductively-generated taxonomy of topics that was organized from broad to narrow, it was found that a higher proportion of broad-topic searches was submitted by English teachers, and a higher proportion of specific-topic searches was submitted by social studies teachers.
- Social studies teachers submitted 50% more searches than English teachers, viewed more than twice as many segments, and selected more than three times as many segments for their lesson plans.

</div>

Of 819 total queries submitted during the workshop, 578 were topic-only. Eighty-six were name searches (i.e., people's names) or name-topic searches. All but a few of the name searches were names of known interviewees. These names might become known to teachers in any of the following ways:

- Interviewee recommended to teacher by workshop colleague,

- Interviewee seen during group viewing of a SFI Production,

- Interviewee seen by teacher during prior search.

Name-topic searches were used when teachers wanted to retrieve specific segments from an interviewee's testimony. Four of the name searches were teachers' searches for Holocaust survivors they knew of from their personal lives, to see if those people had given testimony to SFI.

One hundred fifty-five queries were unique segment identification numbers, used to retrieve specific segments. Segment identification numbers could come from any of the three sources listed above for interviewee names. Segment identification numbers were also submitted as system queries when a teacher followed links in their lesson plans to associated segments.

After exact duplicates, plural-duplicates, misspellings, and typographical errors were eliminated, 334 topical queries remained. These queries were analyzed to discover any natural groupings, which resulted in a list of sixteen categories. Table 5.9 presents the topic categories with example queries for each. Categories in the table are listed from broad to specific. The categories were generated based on the topics of the queries themselves – their face value – rather than the topic of the underlying information need. All identifying information attached to the queries was eliminated during the categorization process. All but eight of the 334 topical queries fit into one or more of the topic categories. Table 5.11 shows the number of queries submitted by each teacher in each category. Each teacher's sum of topics exceeds the number of topical queries because all teachers submitted at least one query that contained two concepts. Multi-concept queries were counted in each of the relevant categories. For example, *refugees, Polish* was classified under both *4. Ethnic groups, perspectives, and relationships,* and *12. Wartime groups.*

Table 5.9. Query topic categories and exemplar queries.

Topic category	Example queries
Abstract concept	resistance education discrimination blood libel
Activity or practice	pogrom experiments writing book burning
Everyday culture & life	after school activities intermarriages prayers
Ethnic groups, perspectives, & relationships	Jewish gentile relationships Jews and Blacks attitudes toward German people
Literature	James McBride The Butterfly Poem Alma Redemptoris
Lessons & reflections on the Holocaust	reflection message to the future
American connection	attitudes toward Roosevelt government officials, U.S. Ku Klux Klan
Pre-war conditions	jobs before the war pogroms Russia pre-1933
Post-war historical events & movements	creation of Israel Holocaust denial
Holocaust-specific experience	Nuremberg laws transport experience
Victim type	gypsy homosexual catholic priests prisoners
Wartime group	resistance fighters prisoners of war
Camps & ghettos, aspects of	education in the ghetto work camp procedures DP camps, United States
Specific Holocaust event	Warsaw uprising The day of burning books
Specific place	Armenia Sobibor
Liberation and liberators	attitudes towards liberators food after liberation

Table 5.10. Distribution of Teachers' topical queries by category.

	SS Totals	Eng Totals	Social Studies				English			
			Alan	Carl	Jimmy	Lily	Cory	Mary	Ray	Wendy
1. Abstract concept	27	48	8	1	9	9	7	6	21	14
2. Activity or practice	12	30	2	5	5	0	2	5	13	10
3. Everyday culture & life	29	14	1	0	0	28	2	2	10	0
4. Ethnic groups, perspectives, & relationships	11	18	2	3	5	1	7	0	3	8
5. Literature	0	10	0	0	0	0	2	2	6	0
6. American connection	9	5	4	0	5	0	5	0	0	0
7. Lessons & reflections on the Holocaust	7	9	7	0	0	0	0	0	9	0
8. Pre-war conditions	5	0	0	1	1	3	0	0	0	0
9. Post-war historical events, movements	4	1	0	0	4	0	0	0	1	0
10. Holocaust-specific experience	11	15	0	11	0	0	7	5	1	2
11. Victim type	13	6	0	6	7	0	1	5	0	0
12. Wartime group	18	1	3	8	7	0	0	0	0	1
13. Camps & ghettos, aspects of	12	12	0	6	5	1	0	1	6	5
14. Specific Holocaust event	5	4	0	2	3	0	0	4	0	0
15. Specific place	36	2	0	8	1	27	0	1	1	0
16. Liberation and liberators	6	0	0	0	6	0	0	0	0	0
Teacher totals	**203**	**173**	**27**	**51**	**58**	**69**	**33**	**31**	**79**	**30**

The query categories were used as a facet for comparing the distribution of topic types between English teachers and Social Studies teachers. Figure 5.2 shows the ratio of query instances in each category by social studies versus English teachers. The categories are arranged from broad (left) to specific (right). As the figure depicts, the trend is that a greater proportion of the queries in broader categories came from English teachers, while the preponderance of queries in more specific categories were submitted by social studies teachers. As described in Chapter 4 (Section 4.2.2), the difference in narrative structure between English and social studies curricula seemed to have implications for the types of concepts the teachers used as building blocks for their lesson plans. When they used literature as a vehicle for teaching skills in generating and comprehending different forms of communication, English teachers worked in the realm of humanistic themes and abstract concepts. While history courses certainly portrayed examples of similar themes and concepts, their narrative vehicle was the chronology of major events, places, and people in Europe and the United States. The differences between these narratives were seen during information search in the types of concepts searched for by social studies teachers and English teachers during content selection. This finding exemplifies an interaction between the Information need Context (specifically, Role → Subject taught) and Information Search Process (specifically, Actualizing).
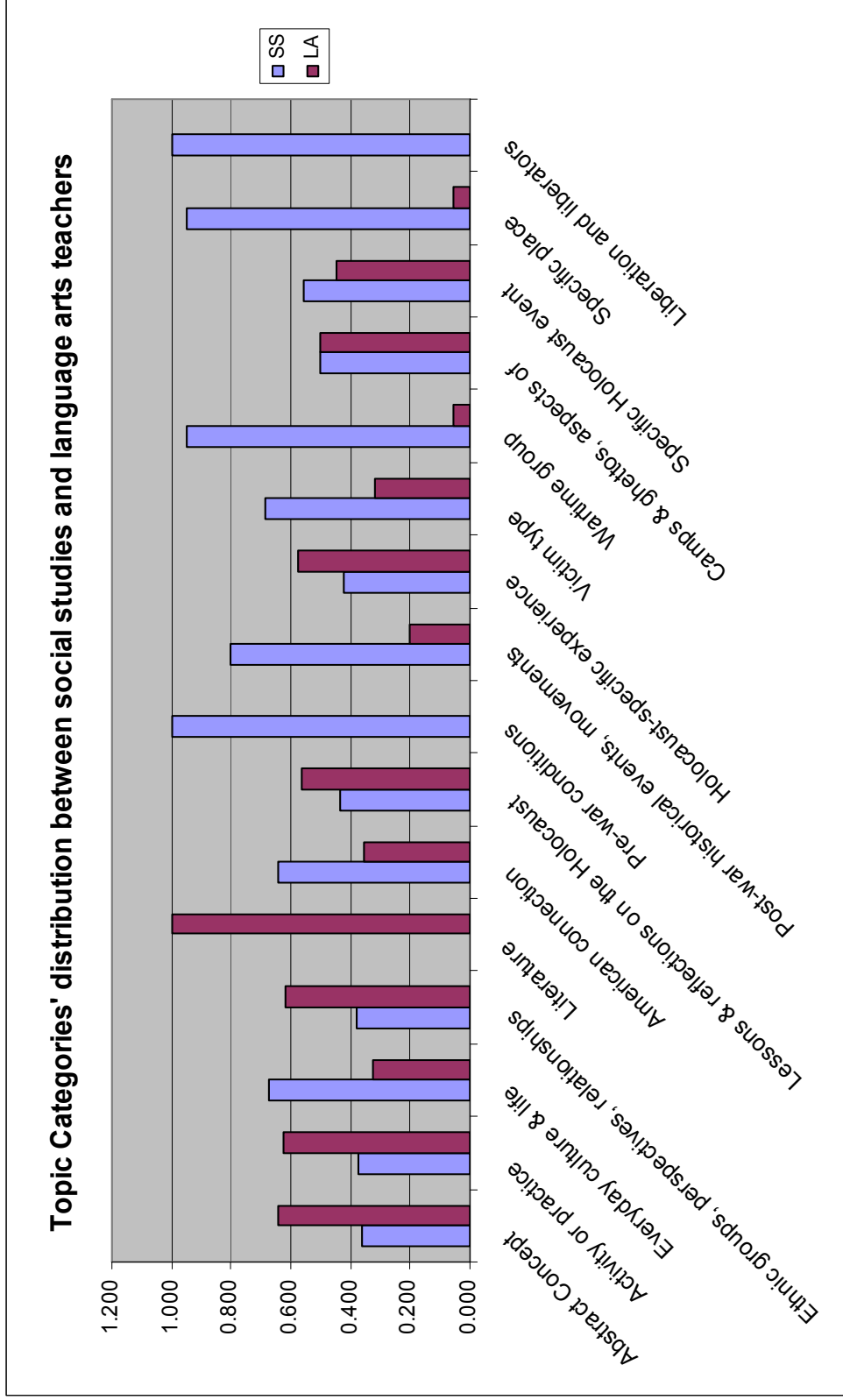
Figure 5.2. Proportion of queries submitted by social studies versus English teachers, per topic category.

5.2.**2** Scope of Focus: Organizing, Searching, Browsing, and Serendipity

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Scope of Focus

Overview

Teachers' ways of orienting, organizing, and executing searches changed as scope of focus broadened or narrowed. With narrow focus came more highly organized search sequences, more search-oriented interactions with the retrieval system. With broader scopes of focus came less organized search sequences, browse-oriented approaches, and a greater openness to serendipity.

Highlighted findings

- The sequence of searches by Carl [H-SS/11/Specific], Jimmy [SS-H/4/Specific], and Lily [SS-H/5/Rough] aligned with the sequential presentation of topics in their lesson plans.
- The English teachers tended to use more browse-oriented approaches whereas the social studies teachers tended to use more search-oriented approaches.

As teachers worked with the workshop system, their scope of focus varied in breadth by person or situation. When focus was narrow or sharp, the teachers' attention was quite strictly oriented toward using the system to satisfy a specific information need. The broadest focus would be random browsing with no particular information need in mind. In between lay the scope found among most of the teachers most of the time: formulating searches with a specific need in mind, then browsing results with applicable criteria in mind while leaving one's time and concentration open for unexpected opportunities in the form of new content, new criteria, or new instructional ideas.

5.2.2.**1** Organizing the search process

Some teachers showed direct links between their conceptualizations of the information need and their actual search behavior in the workshop system. Three

teachers, Carl [H-SS/11/Specific], Jimmy [SS-H/4/Specific], and Lily [SS-H/5/Rough], planned their searches around modules or sub-topics of their lesson plans. In each of these cases, the teacher had a relatively clear idea of how the lesson plan would be organized (chronologically, topically, and geographically, respectively), and the structure of their lesson plans fed naturally into a structured approach to information search. Table 5.11 extracts each of those teachers' descriptions of the lesson plan organization alongside a list of queries for those lesson plans.

Table 5.11. Descriptions of teachers' lesson plans and associated queries.

	Description		Queries (reformulations excluded)
Carl	I like things to go in chronological order. … Basically the way I'm envisioning it is that the pogroms will be first. The Nuremberg will also be second, Kristallnacht's third, the groups is fourth, the life in camps is five and then the trials is last. And, I think basically I started just kind of… looking at, maybe I started with Kristallnacht, evidently, but probably I went in more or less chronological order		pogrom nuremberg laws kristallnacht jehovah's homosexual gypsy prisoners of war camp life sobibor uprising nuremberg trials
Jimmy	I have basically 10 things you may not have known about the Holocaust. … I basically came up with these using the thesaurus and questions that my kids have had from previous years about the Holocaust, consistently. So I put those 2 things together to come up with this list, then I searched for the clips.	**List of 10 Topics** 1. Survival* 2. Resistance 3. Anti-Semitism 4. Holocaust denial 5. Displaced persons camps 6. Attitudes toward liberators 7. Attitudes toward Americans 8. Different types of camps 9. Various targets of Nazi persecution 10. Immigrating to American and the creation of Israel *All of the segments for the first module, Survival, were selected from the results of other searches.	**Numbering aligns with topic list, left** 2. Armed resistance 3. History of anti-Semitism 4. Holocaust denial 5. DP camps, United States 6. Attitudes toward liberators 7. Attitudes toward Americans 8. Different types of camps 9. Freemasons 9. Homosexuals 10. Creation of Israel
Lily	I came upon the map that I have that has different camps … Every time I show this [map] my kids are shocked that there are so many different ones. And so wouldn't it be a good idea to take some of the testimony and start searching the camp names to see if I can find any testimony that talks about the camps.		Janowska Vittel Flossenburg Riversaltes Dachau Chelmno Ravensbrueck Drancy

5.2.2.**2 Searching and browsing**

The design of the workshop system required a combined searching and browsing approach. There was no way to access any segments without first submitting a query. Once a query was submitted, the teachers then had to browse the results and look for indicators of which segments were worth looking into. A more search-oriented approach would be one in which a search-oriented teacher formulated a query with a specific topic in mind, then only clicked through to segments whose summaries suggested a possible or probable match. There would be criteria at the forefront of the search-oriented teacher's mind and little room for compromise. When viewing segments, the search-oriented teacher would watch just enough of each segment to discern whether or not the information need had been met. As soon as that decision was made, the teacher would move back to the results list, to the next query formulation, or to the next task.

A more browse-oriented approach would start out with a query term that would return segments in the same conceptual realm in which the teacher was interested. In these cases, the browse-oriented teacher's intent would be less precision-oriented and more opportunity-oriented. There might be a wider variety of criteria available in the teacher's mind at the time, although none of them require an absolute match. Since the browse-oriented teacher's criteria would be less absolute than the searcher's, the browser might take a longer time to decide whether a given segment would work or not. The following example compares Jimmy, acting as a searcher, with Mary, acting as a browser.

Mary [E-LA/8/None], a contract-based creative writing teacher, came to the teacher workshop without a specific lesson plan or unit in mind. Mary had previously included Holocaust literature in her courses, her pedagogical stance included a heavy emphasis on tolerance and multiculturalism, and she had a strong sense of the needs and strengths of her student community. With such an open-ended agenda, Mary kept a broad, opportunistic focus and looked for ideas

and inspiration in all corners. She gleaned instructional ideas from the SFI productions shown during instructional sessions, she regularly browsed the workshop's resource corner of books pertaining to Holocaust history and Holocaust teaching, and she overtly and intentionally took the workshop format as an opportunity to hear what other teachers were doing.

Jimmy [SS-H/4/Specific], a public school history teacher with Advanced Placement and on-level students, came to the workshop to find testimonies to enhance his existing U.S. history units on World War II. Jimmy also had a solid understanding of his students, and he geared his lesson plan to answer the questions his students most frequently asked about the Holocaust. From these questions and the thesaurus, Jimmy constructed a list of ten relatively narrow topics to address in a one-day module called, *10 Things You May Not Have Known about the Holocaust*. Jimmy's searches for this and other modules tended to include relatively narrow concepts that had to do specifically with the Holocaust.

Table 5.12 shows a comparison of how Mary and Jimmy spent their time with the workshop system.

Table 5.12. Comparison of searching and browsing behaviors: Mary and Jimmy.

	# Queries	Unique segments viewed	Segments viewed per query	Segments selected	Avg. view time per segment	Total hours viewed
Mary	85	47	0.55	19	0:04:05	4:24:55
Jimmy	97	90	0.93	20	0:02:21	4:20:17

As can be seen in the table, Mary and Jimmy submitted roughly the same number of queries, selected the same number of segments for their lesson plans, and spent approximately the same amount of time viewing testimony throughout the workshop week. The differences between Mary and Jimmy appear in how they spent their time after submitting a query. The second column shows that Jimmy watched almost twice as many segments as Mary, while the fifth column shows that he watched segments for half as long as Mary did. With a vaguer concept behind Mary's lesson plans came a looser set of criteria, leaving browsing as the most sensible approach to navigating the workshop

collection, which she did by clicking through to segments then continuing to listen to the same testimony, even beyond the segment boundaries (the media player allowed for continuous play instead of stopping at the end of a segment). Jimmy's more structured lesson plan commanded narrower and more specific criteria, so his approach was to generate a topical results set, then flip through segments until he identified the ones that fit.

In general, the more browse-oriented approaches were used by English teachers, and more search-oriented approaches were used by teachers. This finding could be a result of the fact that the topics in the thesaurus were naturally more aligned with social studies topics and standards than English topics and standards. As described in Chapter 3 (Section 3.2.1.4), the dimensions and topics of English language arts (such as those having to do with communication, language, and literature) were absent from the thesaurus. Without a ready-made vocabulary to use as an access mechanism, the English teachers may have felt forced to take a more opportunistic attitude toward the search process. Therefore, the finding that English teachers were more browse-oriented than social studies teachers could very well be idiosyncratic to this study's environment.

5.2.2.3 Serendipity

In contrast with – yet not necessarily exclusive of – a more structured approach to searching was the open attitude that allowed for serendipity. Serendipity occurred when a teacher came across something useful – a segment, a concept, an instructional idea – while in the process of doing something unrelated.

In the passage below, Cory illustrated how his change in mindset later in the week broadened his focus and allowed for serendipity.

> Cory [E-Lit/12/Specific]: *[Earlier in the week there was] a lot of good information I didn't even get a chance to witness because I was very purposeful in my search so that I could meet the time frame. ... This morning I had a little time to just actually listen to some other testimonies, and I came across this very fascinating testimony, probably the most fascinating of all the ones I've heard. Just today. ... It didn't really have anything that I could put into any of these lesson plans, but I know there is room in the curriculum for me to use it someplace else. I mean, it's very powerful. And it's a story that I believe should be shared.*

Table 5.13 shows how Mary [E-LA/8/None]'s sequence of unsuccessful query reformulations for one lesson plan module led her to segments that inspired the creation of a new module. In the end, Mary's openness to serendipity compensated for her shortcomings with search technique.

Table 5.13. Search sequence and rationale from Mary [E-LA/8/None].

Mary: Novice Searcher. Propaganda [Lesson plan] / Book Burning [Module]		
Query & Time stamp	**Behavior**	**Query rationale**
Burning books (2:00)	Listened to 3 segments, added 1 to lesson plan module	Wanted to create a lesson plan module about book burning, persecution of intellectuals, and importance of education.
2,000 Scholars who speak 3 languages (2:19)	No segments clicked on or viewed	Heard something in prior segments about an advertisement that resulted in 2,000 scholars being murdered by Germans.
2,000 Scholars who speak 3 languages whom the Germans murdered (2:20)	Took 1-hour break right after submitting query, then returned and listened to 1 segment for 40 seconds (at 3:19 p.m.)	Apparent reformulation of prior query, submitted 1 minute later.
library reading (3:20)	Listens to two segments before creating a new module called, "Incorporating Literature into a Study of the Holocaust via a Reader Response Activity" Over the next 40 minutes, she listened to and added three segments and wrote the overview, objectives, and rationale for the module.	None discussed.

Author summary and analysis

The process outlined above involved one hour of work time (excluding a one hour break) over the course of Tuesday afternoon. The queries above reflect three approaches to the same broad category of concepts that Mary associated with her module, "Burning Books": books, scholars, library reading. Notably, the three segments that Mary selected for the "Incorporating Literature…" module would probably be considered false hits in the results list for query, *library reading*. All three of those segments were in the results set by virtue of their common descriptor: *literary reading*; each segment included an interviewee reciting a poem. None of the selected segments mentioned libraries. Mary did not click on any of the segments in the results list that did mention *library*. Presumably, the *library reading* query was conceptually part of the "Book Burning" module. However, when Mary stumbled upon interviewees reciting their own poems, she may have been inspired to create a new module. Mary came back to the original concept the next day, with queries for *educated Jews, higher education, burning of books, books, intelligencia* [sic], *the intellectual in Auschwitz*, and several others. Mary's overall approach during this search experience was to begin her process with a concept in mind while being open to serendipity in the form of new concepts or lesson ideas. While her path may have meandered from the original target, she expressed no discontent with the kinds of results she got for her efforts.

5.2.**3** **Search Tools and Techniques**

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Search Tools and Techniques

Overview

A range of query behaviors was seen between and within the teachers, including natural language phrasing, thesaurus descriptors, Boolean constructions, and quotation marks. For all of these behaviors and techniques, it was just as common to see inappropriate uses as appropriate ones. While all but one of the teachers reported some use of the thesaurus for orientation or concept-browsing, few of them understood the benefits of using thesaurus descriptors verbatim in their queries. Two teachers used the thesaurus heavily for lexical formulation, conceptual definitions, and relationships.

Highlighted findings

- None of the teachers used Boolean operators frequently. This finding is consistent with the characterization of most searches as mono-topical.
- Alan [SS-H/1/Specific] and Jimmy [SS-H/4/Specific] were the only teachers to use the thesaurus's conceptual definitions and relationships at an advanced level.
- When Carl [H-SS/11/Specific], Cory [E-Lit/12/Specific], Ray [E-Lit/0/None], and Wendy [E-LA/15/Specific] used the thesaurus to browse or preview their topics, they did not consistently copy the found descriptors verbatim.

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Teachers used a variety of techniques to express their topical queries. As described above, teachers often condensed the information need into one concept, sometimes two concepts, rarely more. Some teachers expressed those concepts as nouns or noun phrases, as is commonly considered best practice in structured query environments or with controlled vocabularies. Some teachers used natural language to express their queries. In addition to the words used to express concepts, the teachers used Boolean operators to combine concepts and quotation marks to create exact phrases. The search styles and techniques of social studies and English teachers are summarized in Table 5.14 and Table 5.15.

Chapter 5: Findings. Information Search Process

Table 5.14. Query styles of social studies teachers.

	Query construction style	Thesaurus use	Boolean operators	Quotation marks
Alan	Most of Alan's search terms were taken from the thesaurus. Sometimes he generated one-word queries, rather than using the thesaurus, e.g.: *Roosevelt* *strike* *protest*	***Frequent*** ***Copied terms verbatim***	***Infrequent*** ***Appropriate*** Only for one query sequence, used AND to narrow results. *"message to the future" AND "take action"*	***Frequent*** ***Both appropriate and inappropriate uses*** Appropriate: *"message to the future"* Inappropriate: *"future"*
Carl	Carl assumed that the workshop system worked much like a search engine. He thought that multi-word queries would be automatically OR-ed, then results with all terms ranked higher. He was frustrated when he got results that ranked segments with one or two of his terms higher than segments with all three of his terms. *Nuremberg laws effect* *train transport overeat*	***Used to browse concepts,*** ***Did not copy terms.*** Several times, Carl expressed his wish that thesaurus terms were linked to their associated segments.	***Infrequent*** ***Appropriate*** Rather than using the words AND, OR, NOT, Carl used the symbols commonly used in search engines. *pogrom –kristallnacht – november*	***Frequent*** ***Appropriate*** Never used on a first attempt but frequently used reformulations, e.g., *sobibor uprising* reformulated to *"sobibor uprising"*
Jimmy	Jimmy used the thesaurus extensively to learn about Holocaust-related topics and to identify query terms. When he did generate his own query terms, he used the same general technique as Carl, combining words in a query without AND-s or OR-s, expecting segments with all terms to be ranked higher than segments with some terms. *Holocaust denial reaction* *catholic priests prisoners*	***Frequent*** ***Copied terms verbatim***	***Infrequent*** ***Appropriate***	***Infrequent*** ***Inappropriate*** Jimmy's only use of quotation marks was when he reformulated his query, *Jewish resistance* to *"Jewish" AND "resistance"*
Lily	Lily's most challenging searches were for concepts that depict the everyday life of Jews before the rise of the Third Reich. She used nouns and noun phrases, and all of her searches were single-concept. Unfortunately, the thesaurus contained many terms that would have been useful for her search, but she never found them.	***None*** Lily reported her most successful query was a thesaurus concept recommended by a workshop instructor.	***Infrequent*** ***Inappropriate*** It appears as though Lily used AND when OR would have been more appropriate: *anti-Semitism and discrimination*	***None***

Table 5.15. Query styles of English teachers.

	Query construction style	Thesaurus use	Boolean operators	Quotation marks
Cory	Cory's queries consisted of single words, noun phrases, and some AND-ed concepts. He found the thesaurus helpful, although two of his most troubling search concepts were listed in the thesaurus, e.g. the descriptor, *weddings and marriages, Jewish-gentile* would have retrieved segments he sought with *Intermarriages*.	**Frequent** ***Did not copy terms***	**Infrequent** ***Appropriate*** To find segments about relationships between Jews and African-Americans, he tried: *Jews and African Americans*	*None*
Mary	Mary used different approaches in her searches, sometimes using terms from the thesaurus, sometimes formulating words and noun phrases for single-concept queries, and sometimes submitting natural-language queries. She did not appear to grasp the benefits of matching query vocabulary with metadata vocabulary, *2,000 scholars who speak 3 languages whom the Germans murdered.*	**Moderate** ***Copied terms verbatim sometimes***	*None*	*Infrequent* *Inappropriate*
Ray	Ray used some thesaurus terms, such as *anti-Semitism, religious*. Most of his queries were single-concept nouns and noun phrases. Some of the concepts were relatively complex, such as *inmate amusement in the camp* and *therapy through writing*.	**Infrequent** Approximately 5 thesaurus terms used. Never mentioned thesaurus in free-writes or discussions.	**Infrequent** ***Appropriate*** Without satisfactory results for his query, *blood libel AND pogroms*, Ray reformulated to *blood libel OR pogroms.*	***Frequent*** ***Both appropriate and inappropriate uses*** Appropriate: *"Sabbath prayers"* Inappropriate: *"libel"*
Wendy	Wendy's queries frequently included natural language expressions of complex or abstract concepts. She did not show understanding of the need to match query vocabulary with metadata vocabulary. *Jewish social network in the ghettos* *filial piety within concentration camps* *marginalization of Jews*	**Infrequent** ***Copied terms verbatim a few times***	***Infrequent*** ***Inappropriate*** Sole use of a Boolean operator: reformulated *transport experience* (yielded the maximum of 100 hits) to *"transport experience" OR "sanitary and hygienic conditions during transfers."* An AND would have narrowed her results set to 11.	***Infrequent*** ***Appropriate***

5.2.3.1 **Thesaurus**

The workshop system included an analog component in the form of a printed thesaurus (and an HTML version hard-wired into the system interface). Custom designed for the VHA, the thesaurus was a conceptually-arranged hierarchical display of concepts relating to the antecedents, duration, and consequences of the Holocaust. Thesauri are a central tool of communication between users and systems (more appropriately, the people who indexed the segments and created the retrieval algorithm) in that they spell out for users the vocabulary of concepts used to represent the information objects in the system. Two of the teachers,

Alan [SS-H/1/Specific] and Jimmy [SS-H/4/Specific], were especially heavy and enthusiastic thesaurus users. Carl [H-SS/11/Specific], Cory [E-Lit/12/Specific], and Wendy [E-LA/15/Specific] reported having used the thesaurus to orient themselves during initial conceptualization of new topics, but only a few of their queries included thesaurus descriptors. Mary [E-LA/8/None] switched back and forth between using thesaurus descriptors and natural language queries. Ray [E-Lit/0/None] did not use the thesaurus until Friday afternoon (although he did use an instructor-suggested thesaurus term on Tuesday), when he submitted a series of three descriptor queries. Lily [SS-H/5/Rough] did not use the thesaurus. Teachers' thesaurus uses fell into two main categories: (1) conceptual definitions and relationships, and (2) lexical formulation.

5.2.3.1.1 **Conceptual definitions and relationships**

Jimmy [SS-H/4/Specific]: *The printed thesaurus I was able to get about half my ideas out of. That was very useful.*

There were several ways that teachers used the thesaurus's conceptual arrangement to help them access relevant segments. First, teachers used the list of descriptors to orient themselves during the conceptual portion of query formulation.

> Cory [E-Lit/12/Specific]: *The blue book that you gave us at the beginning of the seminar is useful. I would preview that first before I would hit the computer, and so it saved me a lot of time in putting in specific searches because I knew what I was particularly looking for.*

> Wendy [E-LA/15/Specific]: *My process for selecting: It started with an idea. And then I found other materials to build upon it and then I found the testimonies to supplement.* [Interviewer prompt for more detailed description.] *First I would go through the catalog to see if there were subtitles and then – you know the blue catalog that we had?* [Interviewer: The thesaurus?] *The thesaurus, yeah I would go through the thesaurus.*

The teachers also saw the thesaurus as a guide for identifying and understanding Holocaust concepts. For Alan and Jimmy, this function led to the discovery of new concepts that expanded their knowledge of Holocaust experiences.

> Alan [SS-H/1/Specific]: *I don't know how, what other people thought about [the thesaurus]. I found it useful because I probably either a wouldn't have thought about ["spiritual resistance"] or there just wouldn't have been a way for me to really you know come up with that. ... We're looking at Gandhi, looking at nonviolence, noncooperation. And while spiritual resistance is definitely nonviolent, it's much more different because it's more private, it's yourself ... And so I thought that was really cool. And that was something that I would not have come across otherwise ... without the thesaurus.*

> Jimmy [SS-H/4/Specific]: *[My lesson plan has] 10 things you may not have known about the Holocaust. Actually I have those topics right here. Survival, different ways, and I basically came up with these using the thesaurus and questions that my kids have had from previous years about the Holocaust, consistently. So I put those 2 things together to come up with this list, then I searched for the clips.*

> Jimmy [SS-H/4/Specific]: [Query for] *'Displaced persons camps,' and to be honest with you I included that because I had no idea what that was*

when I looked in the thesaurus. I mean, a lot of this has been enriching for my own understanding.

Sometimes these relationships among thesaurus descriptors gave teachers new ideas for understanding and presenting historical concepts and humanistic themes.

Jimmy [SS-H/4/Specific]: [Query for] '*Conditions under American administration.' This was a term in the thesaurus, and I was like, Wow, I can make an obvious Civil Rights way.*

Alan [SS-H/1/Specific]: *I mean a part of me also has regret in that I didn't also do stuff for American history … I want to get, I know there's a thesaurus heading for, like, response to Roosevelt. And to see just to get those and to get other pieces that will really be able to fit.*

5.2.3.1.**2 Lexical formulation**

One of the purposes of a thesaurus is to disclose the lexical representations of concepts used for indexing. In human-human reference interviews or in some current dynamic query suggestion interfaces, users and systems (or intermediaries) can have a real-time discussion to negotiate concepts and terminology so as to co-construct a query that uses system-ready language to represent, as closely as possible, characteristics of potentially relevant information objects. In traditional information retrieval interactions, the negotiation is not quite as fluid, especially when it comes to honing terminology. By using thesaurus descriptors as queries, users can be more assured that the retrieval set will be a closer match to the (Fregean) *reference* of the conceptual query, rather than an arbitrarily selected (Fregean) *sense* representation that exceeds the system's comprehension capacity. The case box below describes how Ray achieved a successful outcome after multiple failed query attempts by accessing the appropriate thesaurus descriptor.

After Ray [E-Lit/0/None] submitted the following sequence of searches …
> Going back to the camps
> Going back to the camps after liberation
> Returning to camps later in life
> Returning to camps years later
> visiting camps years later,

he asked for some help in constructing a more referential query:

Ray: *I'm looking for segments with survivors describing after they've already moved to wherever it is that they've moved and starting families, going back with their children. Going back later. I have 'returning to the camps years later,' but a lot of them are returning after being beaten. 'Returning right after liberation,' returning – and I kind of want to figure out what kind of keyword would get me that.*

Instructor: *Maybe 'visiting camps.' Do you mind if I borrow your thesaurus and look for a term? If I don't find anything right off, we'll ask Doug for some guidance on that search.* [pause] *Here we go: 'Post-war visits to camps.'*

Ray: *Post-war. Yeah.*

Ray submitted the descriptor query, "postwar visits to camps," and watched one segment for six minutes.

Ray was not the only teacher to have struggled with a polysemous query concept, but he was able to minimize wasted time by seeking help. Cory and Lily, however, both unnecessarily spent hours struggling to find segments for polysemous concepts that were represented in the thesaurus. For Cory [E-Lit/12/Specific], none of the formulations he constructed to search for discussions of interfaith marriage retrieved segments that were usable for his lesson plan about *The Color of Water.* Had he used the thesaurus descriptor, *weddings and marriages, Jewish-gentile,* he might have found what he was looking for. Lily's most vexing information need is described in the case box below.

For her "Voices in History" lesson plan, Lily [SS-H/5/Rough] wanted to find segments where interviewees discussed certain aspects of their pre-war lives. She needed to identify six or seven themes or activities that would be held in common

between her students and the interviewees. Lily spent all of her search time until lunch on Wednesday thinking of themes, submitting queries, and reviewing results.

Once I went and I started looking at the testimony, my biggest problem and what has been most time-consuming, is finding themes that could be similar that they would be able to parallel. ... So that's the most challenging, finding, searching for a theme that my students can relate to that they would be talking about in a testimony.

Talking about her searches (underlined), Lily said,
I found <u>family relationships</u>, I did find some, but not enough. ... That's where I went into the <u>school</u> and <u>education</u>. I wanted to find some more, some information on this theme. Didn't really, I wasn't really successful ... <u>Activity</u> didn't get me anywhere. ... Did they go to the <u>movies</u>? Or to the <u>theater</u>? ... Then we started talking about <u>jobs</u> and things like that and I thought well maybe you could find some jobs they had, and the kids could relate to that, but I couldn't find anything about <u>after-school jobs</u>. That was a bad search anyway. <u>Jobs before the war</u> didn't find anything. <u>After-school activities before the war</u> didn't find anything. Then I thought well maybe if they did any kind of, if they had after-school <u>dances</u> ... Didn't find anything on that.

While Lily's perseverance was admirable, she could have saved a substantial amount of time using any of the following descriptors: *sports and games, sports clubs, youth organizations,* or *courtships*, any of which could have been combined with the elemental descriptor, *prewar*.

Unfortunately, Alan and Jimmy seemed to be the only teachers who understood that in order for thesaurus descriptors to be useful, they should have been entered verbatim into the query box. Although four other teachers – Carl, Cory, Ray, and Wendy – reported browsing the thesaurus for concepts, they rarely or never used thesaurus descriptors as queries. This finding underscores the importance of adequate training.

5.3 Summary

This section has described characteristics of the information search process as seen during content selection by teachers in this study. From analyzing transaction logs,

segment selections, relevance judgments, lesson plans, and verbal discussions, it was

found that teachers who used the VHA for content selection engaged in functions and

processes that, together, conceptualize and actualize the information search process. The

next section presents the relevance criteria that teachers used during content selection.

Chapter 6: Findings. Relevance Criteria

> The human mind … operates by association … in accordance with some intricate web of trails carried by the cells of the brain. … The process of tying two items together is the important thing.
>
> *– Vannevar Bush, 1945*

6.1 Overview

Relevance criteria were the perceived characteristics of an information object that contributed a teacher's judgment of the object's current or potential suitability for use in an instructional situation. Relevance criteria represent the attribute values that the teachers needed, wanted, liked, or disliked about an information object. The teachers in this study used a variety of criteria while they searched for and selected segments for their lesson plans. Most of the criteria, ranging from the abstract to the practical, were used while browsing search results and making decisions of whether to select, reject, refine the query, or re-conceptualize the topic. The query terms that generated the results lists, in nearly every case, were words and phrases that teachers felt best represented the topical aspects of the information need. As described in Chapter 5 (Section 5.1.2)**,** some of these topical representations were conceptually closer than others to the underlying information need. The more a teacher would compromise the meaning of the information need during query formulation, the more urgent it would be for the results to be presented in such a way that the teacher could identify whichever information would enable the use of other criteria.

> Alan [SS-H/1/Specific]: Y*ou type in terms, as long as you have an idea of what you might want to search for. If you don't, you can look in the thesaurus as far as possible searches. You just type that in, hit enter, they come up. The only difficulty I had was then after that point, trying to identify those that best fit what I'm trying to look for.*

Not all of the criteria described below were necessarily satisfied by the workshop collection; some of the evidence of criteria came forth in teachers' discussion of unmet needs. Table 6.1 lists the union of all criteria that were identified in this study and a prior study (Lawley, Huang, & Soergel, 2005) which followed teachers using the same collection to collaborate on a series of theme-based lesson plans. The current study found evidence of all but two criteria from the 2005 study, plus five new ones.

Table 6.1. Relevance criteria identified in current study and Lawley, Huang, & Soergel (2005).

	2005	2011
1. Relationship to topic	x	x
2. Relationship with other pedagogical units/concepts	**O**	**O** x
2.1. Relates to other schoolwork	x	x
2.2. Variety for the classroom	x	x
2.3. Unique pedagogical impact		x
2.4. Vocabulary	x	x
3. Characteristics of the story	**O**	**O**
3.1. Role of interviewee in Holocaust events	x	x
3.2. Positive message for students	x	x
3.3. Present-day/real-world issue		x
3.4. Shock value		x
3.5. Music to engage students		x
4. Relationship of story to student	**O**	**O**
4.1. Students connect with passage	x	x
4.2. Students identify with interviewee	x	x
4.3. Radical difference from students' reality	x	x
5. Populations represented	**O**	**O** x
Age of interviewee at time of described event	x	Two of several characteristics collapsed into #5.
Race	x	
6. Characteristics of oral history	**O**	**O**
6.1. Expressive power	x	x
6.2. Storytelling quality		x
6.3 Language and verbal expression	x	x
Nonverbal communication	x	
6.4. Diction	x	x
6.5. Flow of interview	x	x
7. Appropriateness	**O**	x
Developmental appropriateness	x	x
Acceptability to stakeholders	x	
8. Technical production quality	x	x
9. Length-value ratio	x	x
O = container (for grouping related criteria) **x = criterion**		

Relevance criteria are not checklist items, each of which all teachers constantly scan for as they interact with information entities. Different decision scenarios naturally render each conceivable criterion more or less germane to the situation. *Expressive power,* one of the prevalent criteria seen in this study, would not be very likely to apply to a physics teacher's search for videos about torque. Or Jimmy, whose pedagogical stance described his enthusiasm for making connections across the curriculum, would not be able to use the criterion, *relates to other schoolwork,* during content selection for a one-time Holocaust history seminar for his local senior center. The criteria that came into the foreground depended on the context, and context could shift by the moment or remain stable. This is so because any given relevance decision is the situational expression of a confluence of contextual factors, as described in Chapters 4 and 6, including environment, role, person, task, and information source.

The remainder of this section lists and describes the criteria found in this study, with examples of how teachers used them.

6.2 Criteria

1. Relationship to topic

This criterion is the current study's embodiment of what is more commonly called *topical relevance* or *topicality. Relationship to topic* was, in most cases, the flagship criterion for a given search situation. Only those segments that the teacher deemed topically relevant were subject to being filtered out by other criteria. The *Relationship to topic* criterion was used to assess a segment's relevance to the topic of the underlying information need, which was likely not identical to the topic of the query. Review Table

5.4 in Chapter 5 to see how some teachers described the topical needs behind their queries.

Cases where this criterion was not necessarily in play were those instances of serendipity, described in Chapter 5 (Section 5.2.2.3). When teachers happened upon good segments while searching for something else, it might have been the appearance of non-topical characteristics that the teacher found appealing. Some cases of serendipity, though, were also topical; they were encounters with topics other than the topic of the current search.

The passages below show four teachers' descriptions of their information need topics.

Alan [SS-H/1/Specific]: *I'm really interested in looking at how Jews used their spirituality to be a form of resistance, to have that as something to hold onto when everything else is being stripped from them. So, I'm just searching and searching.*

Lily [SS-H/5/Rough]: *That's what I've been looking for with testimony on different topics from the survivors. Topics like what their pre-war family life, relationships, valuables, activities that they did.*

Wendy [E-LA/15/Specific]: *First I would look for the term, but then I would look for something that was more specific in telling me, giving me details of what the concentration camp experience and the train transport experience was like. So it could not be general, it would have to give me specific details that would support the idea of suffering and discomfort and depravity.*

Mary [E-LA/8/None]: *I looked up burning books and then books and you know different things, and I just couldn't find anything where anybody sort of talked about that as being personal thing.*

2. Relationship with other pedagogical units/concepts

As described above, teachers attended to many factors other than topicality when searching for and selecting content for their Holocaust lessons. This category, used as a container for narrower criteria, describes teachers' thinking during content selection about the content's juxtaposition with other aspects of students' educational experience. *Pedagogical units/concepts* is an intentionally broad term that can apply to almost any element of the educational process, e.g.:

- a term on a vocabulary list,

- a reading assignment,

- an historical era,

- an entire course,

- an instructional approach.

2.1 Relates to other schoolwork

The teachers had a broad, inclusive understanding of their students' educational environments and also knew which content and experiences were found in other lesson plans for the same course. Teachers also tended to be aware of what students learned in other courses, whether prior to, concurrent with, or subsequent to their own. When employing this criterion, teachers used their familiarity with students' other schoolwork to identify places where bridges or connections might be made. The difference between this criterion and *Relationship to topic,* above, is that the schoolwork being associated with a segment was not part of the focal lesson plan. Rather, if a segment satisfied the

Topic criterion, an additional match on *Relates to other schoolwork* might have been

considered a desirable or distinguishing feature.

> Jimmy [SS-H/4/Specific] [recalling his queries]: *'Attitudes towards Americans' and I even added 'Russians' within that just to set up the Cold War. A lot of this stuff you kind of use in two fold: teach the Holocaust and set them up for later things.*

> Jimmy [SS-H/4/Specific]: *They get Holocaust in 10th grade, I get them in 11th. So I'm going to give them a brief review of the major events and then shift and go into 8 or 10 different things they may not have been aware of, just to break the idea of thinking in absolutes.*

> Carl [H-SS/11/Specific]: *I show them 'Escape from Sobibor' ... By having [a segment] about Sobibor [the concentration camp], I think that that make it more meaningful to them to watch the movie. Because frankly the movie is accurate but it is not that great. So it's like, I've got to do something to hook them in and get them into it a little bit.*

2.2 Variety for the classroom

This criterion was used by teachers who wanted to collect enough segments to

exemplify the scope, breadth, or nuance of a topic.

> Lily [SS-H/5/Rough]: *I started searching using the map from the Holocaust Museum, the names that were on their map, to see which ones I could find testimony on. ... If I find one or three testimonies, I'm not going to use it [the map]. I need like four or five at least ... describing different pieces of it.*

> Mary [E-LA/8/None]: *I actually want to always have two or three ... because I want them to see somebody maybe that was in the ghetto, somebody that was pre-war or liberated, and someone that was maybe in a camp, whether it was a work camp or a death camp.*

> Alan [SS-H/1/Specific]: *If you ask them about resistance, ...they'll mention the French resistance. And to look at ... nonviolent resistance, noncooperation ... different types of resistance ...Spiritual resistance because while it is a form of nonviolent resistance it's for a little bit different purpose and objective, it's more being able to hold onto yourself and to keep yourself essentially going through this horrific event that's happening to you. And so I really like the idea of exploring that piece*

along with exploring the traditional armed resistance with sabotage, looking at how some strikes were used and that kind of thing.

2.3 Unique pedagogical impact

The use of this criterion reflected the potential for the teachers to exercise intentionality in selecting a media format, source, or item. In the passages below, teachers spoke in various ways about their inclinations to be particular in their use of this collection of Holocaust survivor testimonies. Each teacher had his or her own way of saying that using survivor testimony (as a source) or a particular segment (as an item) should have salient justification for being included in a lesson plan. In Wendy's passage below, her particular justification was that testimonies provided evidential support for the concepts students learned in her Holocaust unit.

> Alan [SS-H/1/Specific]: *I want this to be something that … is able to portray something in a way that I could not have done. I need this to be able to, not necessarily lead you in the direction but to give you a fuller understanding, and a deeper understanding. … If there's a piece, it'll always go to the top if I think it's a piece that's meaningful and it's not something that they will get on their own somewhere else.*

> Ray [E-Lit/0/None]: *There are tons of resources available …   I don't want use it just because I can, I want it to have some kind of connection. … I was very against just using it because I could and just ordering a DVD of testimony because you know we have a thousand testimonies, so why not grab some. I really wanted it to be meaningful and fit in intuitively.*

> Wendy [E-LA/15/Specific]: *The testimony is what really, from my perspective, is what proves… like the proof that supports the hypothesis… and it also sends a powerful reinforcement of the information that you want the students to be able to learn.*

2.4 Vocabulary

This criterion's use provided evidence that some teachers were ever on the lookout for opportunities to introduce or reinforce vocabulary terms via in-class media content. In some cases, such as in Cory's passage below, vocabulary was one of the driving forces behind a search. If a teacher was selecting media for the express purpose of teaching certain vocabulary terms, then the presence of required terms would be a necessary condition for selection. In other cases, teachers might have recognized the presence of good vocabulary terms in a segment, even though they were not specifically searching for them. If a teacher had a results set with multiple topically-relevant candidates for selection, the winner might have been the segment that provided a vocabulary-learning opportunity.

> Cory [E-Lit/12/Specific]: [Q: What features are you looking for?] … *It will have all the literary terms that I'm responsible for teaching them … so when they take the standardized test, I'm fairly confident they'll pass it.*
>
> Jimmy [SS-H/4/Specific]: *I think introducing little pieces of vocabulary, like capo. There's nothing in American prison culture that even resembles that, the idea that a German criminal or another Jewish person or a Ukrainian could be the capo in a barracks with Jewish prisoners.*
>
> Ray [E-Lit/0/None]: *… not many that mentioned blood libel specifically, which is … the vocab word that I want them to get out of it. … I really am looking for specific keywords, for the survivors to use specific words.*

3. Characteristics of the story

Once the teachers became somewhat familiar with characteristics of the survivor testimonies in the workshop collection, they began to incorporate these details into their goals and decisions to seek and select segments for their lesson plans. Two of these criteria were more associated with specific learning objectives:

3.1. Role of interviewee in Holocaust events, and

3.2. Positive message for students.

The other three criteria identified characteristics of the story that would be particularly

useful in piquing students' attention and getting them more engaged with the lesson

content. These criteria are:

3.3. Present-day/real-world issue,

3.4. Shock value, and

3.5. Music to engage students.

3.1. Role of interviewee in Holocaust events

With the Holocaust being an event of such substantial scope and magnitude, it

was no surprise that the workshop collection included interviewees who experienced the

Holocaust in different ways. One of the characteristics on which interviewees differed

was the roles they played in the events being described. This criterion, *Role of*

interviewee ..., exemplifies the adaptability of the process of making relevance decisions.

Teachers who exercised this criterion created it in the context of this particular task and

this particular collection. From their knowledge base about the Holocaust, their

pedagogical motivation for searching, and their understanding of the nature of the

information in the collection, teachers constructed this as an ad-hoc criterion that applied

only to the current situation (i.e., the workshop task). In the passages below, teachers'

mentions of roles are underlined.

> Mary [E-LA/8/None]: *Instead of just using a survivor, use a political*
> *prisoner, use somebody that was in a ghetto, someone that was in a camp,*
> *someone that was in a work camp. You don't always have to concentrate*

on the people that were in concentration camps, there's lots of other perspectives.

Carl [H-SS/11/Specific]: *I'm looking for <u>prisoners of war</u>.*

Jimmy [SS-H/4/Specific]: *A lot of the clips on purpose have been <u>people that have immigrated</u> to the United States. I felt that that was probably a good thing to do since it was a U.S. History course because I can always tie it back into the quota restrictions and that kind of thing.*

Ray [E-Lit/0/None]: *She actually was talking about a Ukrainian pogrom in June of 1941, and she was an <u>eyewitness</u>. So she gives statements with a lot of emotion and ... the clarity of her testimony is very good ... So a real vivid description, I'm looking for more of those kind of eyewitness experiences of pogroms so that they can understand the carnage of what a pogrom is.*

3.2. Positive message for students

The workshop collection of Holocaust survivors' testimonies included stories that conveyed many types of information. Some of the stories teachers experienced during the workshop bore messages of fortitude, survival, strength of relationships, faith, and other testaments to the profound human capacities that can come forth from trial and tragedy. Some teachers constructed queries in order to retrieve stories whose underlying message might be inspirational to students.

Ray [E-Lit/0/None]: *'Philosophy'* [his query] *was ... trying to get the survivors to provide my students with some strength.*

Wendy [E-LA/15/Specific]: *The hiding, the transport experience as well, the suffering: one of the themes I'm trying to expand upon is the triumph of the human spirit. ...I wanted to see different perspectives of the human spirit and how people manage to transcend their experiences.*

Mary [E-LA/8/None]: *Students explore the spiritual resistance manifested by the various responses, including the literary, that portray the dignity of an individual or a people whose spirits transcended the evil of murder.*

Alan [SS-H/1/Specific]: *Message to the future, using that as kind of like a wrap-up activity in the class … it's very much about moving into the future, taking action, whatever it is that you believe in, standing up. … I think it's much more poignant when it's when they're seeing that testimony … It adds just an incredible dimension.*

3.3. Present-day/real-world issue

In both English and social studies lessons, teachers extrapolated lessons and examples from the Holocaust to issues that would resonate with modern students. These connections between the Holocaust and present day issues might have been literal, such as Jimmy's search for interviewees' discussions of Israel, or they might have been more abstract, like Mary's and Cory's use of Nazi propaganda as a comparison point with modern-day propaganda.

Jimmy [SS-H/4/Specific]: [Query for] *'The creation of Israel.' I'm probably going to have a lot more questions about that this year because of how much Israel is in the news now. Whenever I can link or put visuals of little newspaper clips of modern things onto the Power Point, I want to do that with Holocaust denial with Mahmoud Ahmadinejad, the Iranian president.*

Mary [E-LA/8/None]: *Using samples from Nazi propaganda, students will do a comparison and contrast essay to compare how media today controls mass audiences.*

Cory [E-Lit/12/Specific]: *That's how my segments are going to come into play. The survivors will testify to that fact, the students will witness it. … The key focal point is going to be, 'Who is in control of your mind?' Many students think they're individual … They've just conformed to propaganda they've been fed. Thus they're not in control. … So that's how those segments are going to be utilized. A little testimony as to how this has been done before, and then they're going to compare that to how it's being done now.*

3.4. Shock value

While this criterion was mentioned by only two teachers in this study, it serves as another example of specific aspects of Holocaust-related stories that teachers thought might capture students' attention.

> Jimmy [SS-H/4/Specific]: *They're discussing how American officials were told to figure out whether or not people registering in the DP camps were Jewish or not, and this is not good stuff. ... I mean, it's good to help you understand, but it's awful. ... The kids that we have are the ones that are motivated by the shock value of it. That will draw them in.*

> Carl [H-SS/11/Specific]: *And it's like that... just that one quote is enough. And that will be what I probably start the whole unit with. 'I'm not a Jew; I'm a human being.' ... I think is such a very powerful way to start it and get the kids, like, shocked. And get them to think about things that maybe they've taken for granted.*

3.5. Music to engage students

Three teachers mentioned using music in class as a way to pique or deepen students' interest in the material. There were several other mentions of incorporating the *topic* of music into lessons – e.g., music as a survival mechanism for prisoners or as a common interest between modern students and Nazi-era students of the same age – but unless the teacher's interest in these topics incorporated musical recordings or performance, the music-as-topic criterion subsumed under the criterion, *Relationship to topic,* which is described above as analogous to topical relevance. This criterion points specifically to resources that included musical recordings.

> Cory [E-Lit/12/Specific]: *We saw the Shoah examples, and they had the accompanying music and everything. It sounds very powerful. You know, the second one we saw on Tuesday left us speechless... And that's what I want. ... I want it to be really exciting. I'll have music. I want music, so it flows just like what we saw here.*

> Mary [E-LA/8/None]: *Because I teach creative writing, I have to use creative things to get students interested, like music, drama, poetry. And I just like the idea of music. … [This segment] was definitely brilliant be cause he survived in the camps by playing on a harmonica for the Gestapo. And … during his testimony, he actually plays the harmonica.*

> Wendy [E-LA/15/Specific]: *What kind of music that would show a common theme in some of the oral histories that I've chosen for this plan?*

4. Relationship of story to student

Underlying decisions to use these types of criteria was a teacher's inclination to bring lesson content "home" to the student by specifying a certain type of relationship between the student and the story. When teachers exercised these criteria, they really had to tap into their understanding of their students.

4.1. Students connect with passage

Some teachers described the desire to find segments that would inspire in students a connection with the story or the interviewee. Teachers saw this connection as occurring through empathy, fascination, or some other cognitive or emotional mechanism. The next criterion, *Students identify with interviewee,* is distinct from *Students connect with passage* in that the connections experienced in *Students identify with the interviewee* were specifically grounded in similarities between students and interviewees. The current criterion, *Students connect …* is meant to capture those instances where students would feel drawn in to a segment without necessarily having specific characteristics in common with it.

> Jimmy [SS-H/4/Specific]: *I want to take the testimonies and put them on cards … and get some eyewitness testimony of lynchings, or different persecutions of Blacks in the south at the exact same time. Because the kids always seem to understand and empathize with the Holocaust victims.*

In the passage below, Ray rejected a passage on the basis that it failed to meet the criterion, *Students connect with passage*:

> Ray [E-Lit/0/None]: *It's great to have an 80-year-old woman telling you how important education is, but it's not going to be a meaningful lesson for a high-school kid. ...I realized that it wasn't going to be powerful. It was just going to be someone else telling them to read, someone else telling them to do their homework.*

4.2. Students identify with interviewee

This was one of the more popular criteria, used by seven of the eight teachers. According to the teachers, students would engage more deeply and learn better from material that they found personally relevant. There was enormous variety in the dimensions of identity that might be in common between students and interviewees, as illustrated in the examples below. In order to apply this criterion, teachers tapped into their knowledge of their students and identified bridges between student characteristics and interviewee characteristics. By honing in on particular characteristics during content selection, teachers implied an expectation that these characteristics were important enough to students to resonate with them.

In the passage below, Carl planned to ask his students to think back to their own childhoods to find identification and empathy with a survivor who experienced the Kristallnacht pogrom when he was five years old. Carl expressed his hope that this personal connection would highlight the survivor's humanity and underscore the concept that history is more than book chapters and test questions; history happens to people.

> Carl [H-SS/11/Specific]: *One of the guys I found for Kristallnacht was five years old, was hiding in his grandparents' bedroom while a mob came through the house and destroyed things. And I am thinking, okay what if I ... say to the kids, "Bring in a picture of you as a five year old. I want to*

put it in a slideshow." … It's like, that could be you. That could be somebody you know. That could be your sister. That could be your brother. That could be your parents. … Yeah, these are old people now and in ten years they're all going to be dead, but they were young once. They had the same dreams, they had the same hopes and you know, they want to fall in love and all those other things, just basic human things. And just because the pictures are in black and white, and they're 95 years old, doesn't mean they were always 95 years old and so trying to get them more interested in the people as people rather than the people as history.

Since there were not many Jewish students in Ray's classroom, he wanted to find other identity facets that his students could identify with, such as politics, race and sexual orientation.

Ray [E-Lit/0/None]: *I can't go to a public school that has no Jewish kids and show Jewish survivor testimonies and bring empathy. But you know, there are students who belong to different political parties, there are students who are homosexual, there are students who are black, Hispanic, who feel persecuted. Jewish survivor testimony, while gripping, is not enough to interest that.*

The following three passages were extracted from lesson plans and illustrate teachers' intent to direct students' attention to the commonalities between themselves and the interviewees.

Lily [SS-H/5/Rough]: *Students will analyze testimony from Holocaust survivors and create video that compares and contrasts their lives with the survivors.*

Mary [E-LA/8/None]: *Students will draw connections between survivors' experiences and how the power of hate words used through propaganda during the Holocaust and the power of hate words used in their neighborhoods/environments today.*

Wendy [E-LA/15/Specific]: *Remind students that similar to their experiences, the people they are going to become familiar with through the oral histories, have experienced a difficult experience and needed something to get them through their experience as well.*

4.3. Radical difference from students' reality

In contrast with the prior criterion, which highlights students' similarities to interviewees, this criterion was used by teachers who wanted to challenge students' beliefs that their circumstances and experiences are universal.

> Jimmy [SS-H/4/Specific]: *Our school population ... is 95% white, Caucasian. So they definitely need kind of a historical reality check because when you live in that area you tend to think that everywhere else is exactly like yours and it's not, and they need to understand that.*

5. *Populations represented*

In many cases, testimony segments were either selected or rejected because the teachers wanted content that represented either particular populations or a range of populations, where a range might be represented either in one segment or across a number of segments. This criterion served several different rationales, including supporting multicultural curricula, exemplifying the diversity of Holocaust survivors and their experiences, and reflecting portions of the student population.

In the passage below, Alan was searching explicitly for a particular person-type (a Jewish Dane) as a step in collecting testimonies that would reveal a breadth of resistance-related perspectives.

> Alan [SS-H/1/Specific] [about his query for *resistance, Danish*]: *The decisions you make, the implications are very different for if you were just a regular, let's say, you're just a regular Dane, or if you're a Jewish Dane, very different. So that was where I wanted to go because of that because I didn't really have anything, and I felt that that was missing.*

The defining features of a population depended on the underlying information need; the desired population could have been defined by age, race, religion, sexual

orientation, nationality, etc. A population could have been represented either by the

interviewee's membership in that population or by the discussion of the target population

in a segment, as illustrated in the two segments from Carl, below.

> Carl [H-SS/11/Specific]: *He was born like 1914, so he was older when it all started, so his memories will be different because he was 30 instead of 10 or 15 or whatever the number you'd want to pick is. And so, he brings a much more mature viewpoint. I don't want to say that the people who… of course, if you're born in 1930, and you survived you may still have some memories of it but you wouldn't have the process, the cognitive process.*

> Carl: *One of the things I'm trying to do is get a like a sense of the different groups that were part of the Holocaust. So I found survivors talking about encounters with gypsies, encounters with homosexuals, or Jehovah's Witnesses … One of them is looking, it talks about sort of a rivalry almost between the Jews and the gypsies, the gypsies you know -- it sounds almost like a gang war – had this section of the camp and they didn't want anybody coming in. And so I think that will really help the kids understand that not only is everyone's experience in the camp different, you know, groups have different experiences.*

In some cases, teachers had one or more specific populations in mind for which

they hoped to find matching segments. In other cases, a teacher who had submitted a

query on an unrelated topic or facet would use this criterion to select from a number of

otherwise equally relevant segments. In the passage below, Jimmy had been looking for

segments describing liberation experiences. In one of the segments retrieved by his

search, Jimmy found an opportunity to prime his students for the upcoming Civil Rights

unit.

> Jimmy [SS-H/4/Specific]: *He's got a really interesting take on being freed by African American soldiers, being a Polish man who had never seen a black man before. I subtly want to start introducing civil rights … so I can go back and make a connection later on.*

6. Characteristics of oral history

6.1. Expressive Power

One of the most compelling reasons to present first-person narratives to students was for the dramatic effect that came from hearing and seeing people tell stories from their own lives. This effect was compounded by the profound and harrowing nature of stories associated with the Holocaust. When people described the salient aspects of their Holocaust experiences, they sometimes told their stories in such a way as to bring themselves and their audience into the moment, recreating intense sensations and emotions. These candid, heartfelt, human moments were often acknowledged by workshop teachers as a major factor in selecting segments to present in the classroom.

> Alan [SS-H/1/Specific]: [Q: How would you choose among them?] *I would want something that is kind of poignant, that it is moving, that there is emotion to what is being said. ... I want to be able to have something that kind of gets them in that frame of mind, that puts them in that place, and I think, I really do think that some of those messages can do that.*

> Ray [E-Lit/0/None]: *One of them was very, very powerful. She actually was talking about a Ukrainian pogrom in June of 1941, and she was an eyewitness. So she gives statements with a lot of emotion and the directness of her, the clarity of her testimony is very good.*

In some cases, teachers found segments compelling enough that they selected them without any immediate plans for their use in the classroom.

> Cory [E-Lit/12/Specific]: *I came across a very compelling interview, testimony that I hadn't had leisure to find before because everything was so lesson plan driven. ... This morning I had a little time to just actually listen to some other testimonies. And I came across this very fascinating testimony, probably the most fascinating of all the ones I've heard. ... It didn't really have anything that I could put into any of these lesson plans, but I know there is room in the curriculum for me to use it someplace else. I mean, it's very powerful. And it's a story that I believe should be shared.*

6.2. Storytelling Quality

Another characteristic of oral history that teachers used as a selection criterion

was the quality of the interviewee's storytelling. Apart from the topical content or the

emotional impact of a story, some stories stood out as particularly well told or as

particularly unsuitable because of the absence of high-quality storytelling.

> Lily [SS-H/5/Rough]: *It needs... I guess the storytelling part. Are they a good storyteller? You know? Or is it just like, "blah." You feel bad ... but you really do need to be choosy about which ones are better than others.*

> Carl [H-SS/11/Specific]: *You know, it's one thing to read the Nuremburg laws and say, "Okay, this is what they do." And then it's another thing to hear someone saying, "My family lost their home, they lost their business. My father was a lawyer and then he never practiced law again."*

In the passage below, Mary described her difficulty finding a topical segment that

also satisfied her need for good storytelling.

> Mary [E-LA/8/None]: *I couldn't, most of the people ... would talk about it, but they wouldn't talk about it intensely. I had one guy who talked about it and just said he was forced to watch it. But that's really all he said.*

Different teachers noticed different aspects of storytelling, but those mentioned

included whether the story was boring or exciting, whether the interviewee personalized

the story rather than just relaying the facts, and how well the interviewee stayed on topic.

Alan described using a combination of factors that contributed to selection, including

aspects of the storytelling quality.

> Alan [SS-H/1/Specific]: *It was perfect if it was something where the person was a very clear and understandable and they had great information. Then it was extremely easy. ... But that wasn't always the case because sometimes they'll jump around in their story ... I thought this was supposed to be about resistance but it's kind of jumping around a little.*

6.3. Language and Verbal Expression

For some teachers, the words and phrasing used by the interviewee were important enough to incorporate into their selection decisions. This criterion was used as a positive-selection criterion by Wendy and as a negative-rejection criterion by Alan.

> Wendy [E-LA/15/Specific]: [description of selected segment] *Strong, clear narrative.*

> Alan [SS-H/1/Specific]: *How accessible it is as far as the language? … It gets a bit little more complicated as far as the wording. So that plays a big role.*

6.4. Diction

Some of the teachers expressed the importance of phonetic (rather than semantic) understanding of a speaker's words. In the workshop collection, most interviewees were non-native English speakers, and quite a few spoke with heavy accents. Even when accents were not an issue, diction might be poor in other ways, such as slurred words or lack of enunciation.

> Jimmy [SS-H/4/Specific]: *I may have looked at three or four clips, and I picked two out of the four. There were two where the English wasn't very well spoken … hard to understand.*

> Lily [SS-H/5/Rough]: *I chose ones that I could understand what the people were saying. You know, I think that's important because I don't feel like running around having the kids go, "I have no idea what they just said!"*

7. *Appropriateness*

Whether during interviews or group discussions, all of the teachers mentioned the need for selected content to be appropriate to present in the classroom. Appropriateness was usually described by teachers as being related to students' ages and/or developmental levels, but it also had to do with material inappropriate for some audiences of any age, including violence, sexual content, or obscene language.

> Cory [E-Lit/12/Specific]: *Not all of it is appropriate for the classroom environment ... You know, didn't have any foul language, didn't have anything suggestive, just ... appropriate to our discussions.*

In the two passages below, Mary and Lily reflected on decisions about Holocaust related content that students might not have been developmentally prepared to see and understand. While Lily expressed concern about her students' emotional capability to deal with graphic or harrowing content, Mary described the risk in showing a pro-Nazi movie to students who might not yet have the skills to think critically about the consequences of Nazi ideology.

> Lily [SS-H/5/Rough]: *We need to teach it but you have to be aware of what you pick, you know, and how much they can handle. ... I know in the beginning when I was teaching the Holocaust, I do believe that I did probably show some things that maybe I shouldn't have. ... It's like how much do you show, how much is okay? You know, because you do need to teach it.*

> Mary [E-LA/8/None]: *Triumph of the Will* [a Nazi propaganda film]*, I asked [Carl and Jimmy] about, and they said they're hesitant to show it because ... it's such a brilliant movie that children of that age don't know enough that they might actually get sucked into the idea of the whole Hitler party being a good thing.*

8. Technical production quality

While it may be obvious, it should not be taken for granted that otherwise optimal material could not be used if it could not be seen and heard. Poor production quality alone could be enough to cause a teacher to reject a segment.

> Carl [H-SS/11/Specific]: *Looking for clips that will support that, ones that the kids can understand so some people, you know the microphone's not very good … there's a dog barking in the background or a truck went rolling by.*

> Wendy [E-LA/15/Specific]: [description of rejected segment] *Not an easy segment to discern, for the sound definition is not very clear.*

> Mary [E-LA/8/None]: *Her brother had gone to a Congressman in Illinois to find her. And she actually shows you the letter, but you can't read it because it's so hard to read it on this database. But I thought about what would be a really good document you know just to find out what the congressman had wrote back to her brother because she doesn't really tell you; she just shows you the document.*

9. Length-value ratio

Not surprisingly, the length of a segment was an important element of a teacher's decision to select or reject. Class time was a precious commodity, with teachers constantly aware of the pressure to move through the curriculum in time to meet course objectives and assessments. Another time-related consideration had to do with students' attention spans. Hence, length-related decisions had more to do with the ratio of time to content-value than absolute length.

The following quotation from Jimmy shows how his consideration of length mitigated his inclination to select a segment that contained good content.

> Jimmy [SS-H/4/Specific]: *It was just a very long clip with lots of pauses. The speaker may have been good, but it would have taken 10 minutes to show 2 minutes of material.*

267

In contrast with Jimmy's perspective, Lily implied that there was a threshold at which the value of the content would make it worth her time to present a video to her class.

> Lily [SS-H/5/Rough]: *I guess the length, of how much they talk about it. If they only talk about it in one sentence, well what do I need one sentence for? And there were some that really did go in depth and talk about their arrival, and how they changed their clothes ... and then they would talk about where they went to work and things like that. So some were longer than others, but the longer the better.*

The criteria described in this section were idiosyncratic to this particular user- and task-situation. However, if such specialized criteria existed for this context, with evidence of use among multiple teachers, it stands to reason that other use situations bring forth their own criteria. The close coupling of many of these criteria with instructional objectives and techniques indicates a strong connection between the information need context (Chapter 4) and the relevance judgment process.

6.3 Summary of Chapters 4 – 6

The data presented in these Findings chapters portray the characteristics of the three conceptual components of the process by which users sought and selected information within a specific task context. The cases depicted here were of teachers (users) selecting content (information search) for lesson planning (parent task). The elements of the process were:

- Information need context,
- Information search process, and
- Relevance criteria.

The information need context was characterized by those layers that defined the situation within which information seeking occurred. The generic layers of context are:

- Environment,

- Role,

- Person,

- Task,

- Information source.

As is shown in Chapter 4, each of the layers of the information need context carried important information and implications for searching and relevance judging. Indeed, many of the relevance criteria listed in Chapter 6 were born out of aspects of the context since the context was, by definition, a profile of where, how, and by whom information was being sought and used.

The two facets of the information search process, conceptualizing and actualizing, include the characteristics, goals, thought processes, and behaviors of teachers as they tried to satisfy their context-laden needs. Chapters 4 and 5 provide examples of relationships and associations between each layer of context and the manner in which the information search process played out. For example:

◦ Standards, Standardized Curricula, and Standardized Assessments (part of the context *Environment)* contributed to the teachers' *Conceptualization* of information search by contributing to their goals to find content that helped achievement of professional mandates (p. 52), and by contributing to the visceral information need that had to be transformed into a system-ready query (p. 62).

◦ The amount of experience a person had in the *Role* of teacher could sharpen the focus

of content searches by virtue of the teacher's greater familiarity with the nuances of

the learning environment (student needs and preferences, standards, curricula,

assessments) and a richer personal information environment to which new content

would be added (p. 23).

∘ A *Person*'s cognitive style could influence the manner and extent to which she or he

structured a sequence of searches (p. 27).

∘ The *Task* within which information seeking occurred exerted a great deal of influence

on the topic of the information need (p. 40, 42).

∘ The *Information source* characteristics included the mechanisms teachers used to

express their information needs and recognize relevant content (p. 51).

The next chapter discusses the implications of these findings for theory, design, and

practice.

Chapter 7: Discussion of Findings and Implications

> Consider a future device for individual use, which is a sort of
> mechanized private file and library … in which an individual
> stores all his books, records, and communications, and which is
> mechanized so that it may be consulted with exceeding speed
> and flexibility. It is an enlarged intimate supplement to his
> memory. … He can add marginal notes and comments.
> — *Vannevar Bush, 1945*

7.1 Restatement of Purpose

This study's intent was to examine content selection for lesson planning as a case of

information seeking. Teachers' lesson planning processes have been explored in many

studies (including Clark & Yinger, 1979; Munby 1982; Clark & Peterson, 1986; Chung,

2000; Thomas, 2002; Zhao & Hoge, 2005); teachers as a user group are beginning to

receive attention in information studies research (including Karchmer, 2001; Recker,

Dorward, & Nelson, 2004; Hanson & Carlson, 2005; Perrault, 2005; Khoo, 2006; Mardis,

2009a,b). This dissertation contributes to this latter sector of literature by introducing a

context-rich, work-task-oriented study of teachers' need for, search for, and selection of

multimedia content for English and social studies lesson plans. The findings of this study

thoroughly describe the characteristics of three prominent elements of the information

seeking process as experienced in the environment of the 2006 MALACH Teacher

Workshop:

- Information need context,

- Information search,

- Relevance criteria.

The associations among the three elements were found to be so intricate that no single element could be understood or described unto itself, disconnected from the others. These three elements should be understood as facets of one phenomenon (along the lines of implemented-lesson: subject/grade/objectives or book: author/title/publisher), not discrete pieces of a whole (along the lines of sessions on a syllabus or chapters in a book). This three-faceted portrayal of information seeking brought forth six research questions. In this study, three of these questions were explored in depth in order to characterize the three main elements of information seeking. Briefly, the information need context was found to consist of five layers, each of which influences searching and relevance judging. The information search process proceeds on two facets, conceptualizing and actualizing, which each describe cognitive and behavioral aspects of interacting with an information retrieval system. Relevance criteria rise out of the context as the aspects of an nformation object that determine its suitability for the situation.

The remainder of Chapter 7 is organized as follows:

- Section 7.2 summarizes the findings and discusses their connections with other models and findings.

- Section 7.3 introduces a model that depicts how the three components interact.

- Sections 7.4 describes contributions and implications, and

- Section 7.5, Future Work, concludes the chapter.

7.2 Discussion of Findings

7.2.1 RQ1: What are the characteristics of the information need context that underlies teachers' content selection?

The study's conceptual framework modeled the information need context, which consists of five levels that were incorporated from T.D. Wilson's (1981, 1997) models of information need and from Cognitive Work Analysis (Fidel & Pejtersen, 2004; Vicente, 1999). Like other studies guided by contextual models of information seeking, this study found that examining different aspects of context provided rich information about teachers' needs, goals, capabilities, and constraints for content selection.

7.2.1.1 Discussion of information needs

As described in Chapter 2, some models portray the information need by emphasizing the absence of information rather than the presence of an information problem (Belkin, 1980; Dervin, 1983). Belkin's work is motivated by the notion that when a user experiences an anomalous state of knowledge, the anomaly itself leaves the user ill-equipped to describe the information need or to recognize relevant information (Belkin, Oddy, & Brooks, 1982; Marchionini, 1995; Bean & Green, 2001). In practice, it might be more appropriate to ask, "*How* anomalous is the state of knowledge?" rather than, "*Is* the state of knowledge anomalous?" When teachers from this study went into content selection with well-defined goals, they knew how to describe what they were looking for. Their retrieval problems arose in the form of difficulty generating queries that described the important aspects of their needs in language that matched the vocabulary of the workshop system's metadata. Need-to-query transformation is discussed in Section 7.2.2, below.

Whatever the depiction of the information need or the degree of the anomaly, teachers occupy an atypical position as information seekers when they select content for lesson plans. In most information seeking situations, the information system is queried by the same person who will be the user of retrieved information. This person enters into information seeking because of some task or problem that requires information that cannot be brought to mind (Soergel, 1985; Vakkari, 2001; Bystrom & Hansen, 2002; Ingwersen, 2002; Wildemuth & Hughes, 2005). According to the sense-making view, the person lacks knowledge that would allow movement through the current situation (Dervin, 1983). In these more typical information seeking situations, people have been found to experience increases in knowledge and confidence as they progress through information seeking (Kuhlthau, 1991; Marchionini, 2006), while at the same time their interactions with the information system become more specific and perhaps more efficient (Yang, 1997; Tang & Solomon, 1998; Vakkari & Hakala, 2000; Xie, 2000; Pennanen & Vakkari, 2002; Wildemuth, 2004; Todd, 2006; Zhang, 2010). However, in the case of content selection, the teacher is not looking for information per se; the teacher is looking for *information objects* to present in the classroom as part of a pre-planned learning experience. Most likely (but not always, as was found in this study), the information to be delivered via selected content is already known by the teacher. The challenge is to find materials that present information content to students in a way that is interesting, pedagogically sound, and compatible with available time and equipment. There are at least two parties and three needs in play:

- ***Students'* need for *information*** – Students are in the classroom to learn; students'
  learning is measured by their progress through the pre-defined learning goals that

are articulated in standards and lesson plan objectives. These standards and objectives come in the form of facts, skills, and processes that students are expected to attain or master. The students' need is for information that will help them attain the learning goals.

- *Teachers'* **need for** *information* – Some of the teachers' information seeking during lesson planning involves gathering information for their own knowledge. Sometimes this knowledge seeps in while the teacher is interacting with information during lesson planning and content selection. Other times, the knowledge is actively sought by a teacher who either wants to incorporate new information into a lesson plan or deepen his or her current understanding of lesson-related concepts. Teachers can be in need of information about subject content or pedagogy (Shulman, 1986; Mishra & Koehler, 2006).

- *Teachers'* **need for** *information objects* – If teachers were interested only in presenting information content to their students, they could much more easily direct their students to the textbook or incorporate the information into a lecture. But teachers are looking for much more during content selection than an information match. When teachers select content for a lesson plan, they are looking as much for presentational elements as for informational ones, as evidenced by the spread of teachers' relevance criteria across topical, pedagogical, and practical realms. The teacher has the lesson plan in mind as a structure into which selected content will be integrated. The selected content should convey the necessary information, be pedagogically sound, developmentally appropriate, and germane to the teacher's creative vision of the lesson plan as an artifact.

7.2.1.2 Discussion of contextually embedded users

In a report on use of digital resources by teachers of Science, Technology, Engineering, and Mathematics (STEM), Hanson and Carlson (2005) identified four challenge areas that interact "to create the context in which technology and learning can be marginalized or thrive" (p. 7):

- Characteristics of student users,

- Characteristics of the teachers,

- Characteristics of the content,

- Characteristics of the environment.

Freund (2008) conducted a study of the influence of contextual spheres on information seeking behaviors of software engineers (who work as consultants in project-oriented situations) and identified four contextual factors that influence different aspects of information seeking, including relevance criteria. The depictions of context in study's such as Freund's, Hanson and Carlson's (2005), Taylor's (1991), Wilson's (1981), and many more share similarities with the contextual layers found in this study.

7.2.2 Layers of Context: Environment

<table>
<tr><td align="center">Findings Summary: Environment</td></tr>
<tr><td>

- Standards, curricula, and standardized assessments exerted considerable influence on how teachers thought about their tasks and performed their duties. To the extent that teachers had to select and present content that would help students meet standardized learning outcomes, these standards contributed to the definition of the information need behind content selection. In addition to striving to meet the standards, the teachers also selected content to compensate for perceived gaps in standardized curricula.

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> - The teachers were unanimous in their emphasis on finding ways to make course content resonate with students. The dimensions of resonance that were most widely and frequently mentioned had to do with socio-cultural aspects of students' lives. In this way, the socio-cultural environment of the teachers' schools and their wider communities shaped the information need.

The broadest layer of context, Environment, includes three levels:

1. Work domain,

2. Human environment, and

3. Physical environment.

The inclusion of the Environment layer in this and other models contributes to the understanding of different kinds of information tasks, how people go about them, and what kinds of challenges they face in completing them (Vakkari & Jarvelin, 2005). This understanding can inform the design of systems and processes that optimize characteristics of their use environments.

7.2.2.1 Work domain

From their extensive review of the literature pertaining to information seeking by professional groups, Leckie, Pettigrew, & Sylvain (1996) found that different professions have different missions, goals, cultures, and organizational structures, which impact information needs, seeking, and use. "The need for certain kinds of information, the process of retrieving it, and the uses to which it is put arise out of the ways in which professional practice is carried out on a daily basis" (p. 179). Toms, Freund, Kopak, & Bartlett (2003) found significant differences between users' behaviors when they conducted tasks in different domains such as consumer health, general research, and

travel. And research based on Taylor's (1991) model of Information Use Environments found great differences in the contextual profiles of information seekers in different domains (Palmquist, 2005).

In the domain of education, research has shown that teachers' planning behaviors are influenced by standardized curricula and high-stakes assessments. The themes that have emerged in the past two decades describe standardization as both beneficial and detrimental to the provision of high quality public education. Teachers have reported that standards establish useful guidelines and benchmarks that decrease uncertainty about what should be taught over the course of a school term. New teachers, such as Ray and Alan in this study, find that standards help orient them to some of the expectations of their new jobs. Standards promote homogeneity of content throughout a school district and decrease the likelihood that students will slip through the cracks and advance before accomplishing benchmarks (Ravitch, 1996; Barksdale-Ladd & Thomas, 2000; Goertz, 2000; Abrams, Pedulla, & Madaus, 2003). The drawbacks of standardization include the erosion of teachers' autonomy and discouragement of innovation in the classroom (Mabry, 1999; Day, 2002; Morgan, 2010). These drawbacks, which were echoed by some of the teachers in this study, create situations where teachers feel that meeting standards comes at the cost of good pedagogy and worthwhile content (Barksdale-Ladd & Thomas, 2000; O'Day, 2002; Abrams, Pedulla, & Madaus, 2003; Friedman, 2006). The valuation of teachers' merit based on test scores and adherence to standards decreases independence, self-efficacy, and job satisfaction (Kelchtermans, 1996; Day, 2002). Research has shown that high-stakes assessments mitigate the benefits and exacerbate the

drawbacks that come from standardization (Barksdale-Ladd & Thomas, 2000; Abrams, Pedulla, & Madaus, 2003; White, Sturtevant, & Dunlap, 2003).

Whether the effects of standardization are experienced as strengths or drawbacks, they end up influencing teachers' content decisions during lesson planning. Teachers have been found to shift their lessons away from non-tested or non-standardized content in favor of content that teachers are held accountable for by their adherence to the standards or student performance on standardized assessments (McMillan, Myran, & Workman, 1999; Barksdale-Ladd & Thomas, 2000; Thomas, 2002; Abrams, Pedulla, & Madaus, 2003). While the types of shifts teachers make can vary based on different aspects of the teacher's situation (e.g., subject taught, experience level, or curriculum characteristics) a recurrent theme across studies is that standardization results in a shift away from activities and content that promote higher-order thinking skills (Mabry, 1999; McMillan, Myran, & Workman, 1999; Barksdale-Ladd & Thomas, 2000; Pahl, 2003; Friedman, 2006; Biser, 2008).

This compromise of higher-order thinking skills plays out differently for English and social studies. In a critique of the use of rubrics to assess English writing skills, Mabry (1999) writes, "The standardization of a skill that is fundamentally self-expressive and individualistic obstructs its assessment" (p. 674). A case study of an urban language arts teacher found that in a high-stakes assessment environment, instruction was fragmented and emphasized test-taking skills "rather than providing class time to practice and apply these skills for the purpose of constructing knowledge about texts" (Dooley & Assaf, 2009, p. 386). In social studies, multiple studies have reported that standardized curricula are so densely packed with factually-oriented standards, teachers have to race to

deliver the information during the allotted time. This leaves no room for activities that deepen students' engagement with course content and use higher-order processes such as critical thinking and synthesis (McMillan, Myran, & Workman, 1999; Pahl, 2003; Friedman, 2006; Biser, 2008). According to the National Center for History in the Schools (1996), students gain historical understanding by reading, interpreting, and comparing primary documents and historical narratives, such as the survivor testimonies contained in the VHA. However, Friedman (2006) finds that teaching with these types of documents takes teachers longer than other methods and sources, such as lectures and text books.

From this discussion, it is clear that teachers work hard to ensure that lesson plans include the content required by standards. But some teachers in this study also showed signs of finding ways to compensate for gaps or inadequacies in standardized curricula, creating a second level of consequences from standardization. These tendencies have been found in other studies, where teachers supplement, modify, or even ignore mandated content in order to deliver instruction that satisfies their own assessments of student needs (Thomas, 2002; Agee, 2004; Bomer, 2005; Dooley & Assaf, 2009).

Whether the motivation is alignment with, compensation for, or resistance against, educational standards are a major force in shaping lesson plans. By extension, these forces influence the topical, pedagogical, and practical criteria teachers use to seek and select outside content for their lesson plans. Standards shape topicality to the extent that they dictate the topics that teachers should emphasize (alignment) or to the extent that they exclude topics that teachers feel are essential (compensation/resistance). When teachers want to align lesson plans with standards, they might use pedagogical criteria

during content selection to ensure that characteristics of the content match the cognitive levels for which students are equipped. When teachers want students to reach beyond the cognitive levels that standardized requirements call upon (compensation/resistance), their pedagogical criteria might incline them toward material that challenges students to analyze, synthesize, and evaluate. Finally, practical criteria, especially those related to time management, are essential to teachers' decision making and planning to make sure that externally required and internally desired learning objectives can be achieved in the limited time available.

7.2.2.**2 Human environment**

Human environment is the only portion of the Information Need Context model that is significantly different from the conceptual framework that opened the study. Following from other models of context (Taylor, 1991; Fidel & Pejtersen, 2004), the conceptual framework originally used the label "Organizational environment" in the position now occupied by "Human environment." When teachers spoke about the contexts within which they worked, they described forces and relationships within their schools and beyond. Some mentions were made of the expected dimensions of Organizational Environment, such as in-school politics and interpersonal relationships. But when teachers spoke about their students, they hardly ever described student characteristics without incorporating information about the communities within which their schools and students were situated. Teachers saw the political, economic, cultural, and social themes of the community as closely linked with students' identities. Furthermore, teachers' most-mentioned teaching strategies tried to target instruction to match important dimensions of

students' identities. Teachers aimed to make course content relevant to their students. In order to do so, they had to understand their students. In order to understand their students, they had to understand their students' culture, community, and family life.

This finding is consistent with themes in the educational literature. Peshkin (1978) reports that schools and communities are closely linked. Teachers want to help students feel connected with their communities (Chung, 2000), and they understand those communities by considering environmental and contextual factors of the community and students' home lives (Sardo-Brown, 1990). "Student diversity is one of the most influential components in decision making for social studies" (Chung, 2000, p. 130). For both English and social studies teachers in this study, students' cultural, ethnic, and socio-economic characteristics were the defining facets they used to describe their students.

7.2.2.**3 Physical environment**

This study found that teachers thought about the practicalities of the physical environment when they made content decisions for their lesson plans. These practicalities included accurate scheduling of equipment rentals and/or lab time, transport of equipment between classrooms, working order of equipment, and student-to-computer ratios. Other studies have similarly found that technological resources and physical equipment are vital to integrating technology into the classroom (Venn & McCollum, 2002; Sumner, et al., 2003). Hanson and Carlson (2005) found that teachers whose classrooms had more computers were more likely to respond that sufficient technology was available than teachers whose classrooms had few or no computers.

7.2.**3 Layers of Context: Role**

> ### Findings Summary: Role
>
> One aspect of a teacher's role is the subject she or he teaches. This study found that the narrative frameworks of the two subjects represented among participants – English and history – tended to place teachers of these two subjects at different points of origin in conceptualizing their information needs. Specifically, English standards and learning outcomes were more skill-oriented. Teachers planned instruction by selecting literary works (the path to the outcomes) and enabling experiences (the vehicle to the outcomes, in the form of activities, discussion topics, assignments, etc.). The topical aspects of their information needs were aligned with the topics and themes of literature they chose, not with the topics and themes of the standards.
>
> On the other hand, the history standards that were mentioned were found to be more fact-oriented. Even when history curricula included skills as outcomes, such as comparison or critical thinking, these skills tended to be added to or associated with requirements that students learn about the major people, events, and trends that defined the geographical and/or chronological boundaries of the course. The topical aspects of history teachers' information needs were more specifically articulated in their standards and curricula than in English teachers'.

Within the same work domain, people with different roles are found to have different information tasks and needs (Taylor, 1991; Leckie, Pettigrew, & Sylvain, 1996). The people in this study all performed the same professional role (teacher). Among members of this group, three role characteristics stood out as having implications for how teachers selected content:

- Subject taught,

- Amount of teaching experience, and

- Pedagogical stance.

7.2.3.1 Subject taught

There were apparent differences in the search behaviors of social studies and English teachers in this study. Since the sample of participants in this study is small and opportunistic, these preliminary findings should at best be taken as an indicator that more research on this dimension is warranted. Previous studies that describe teachers' content selection – whether from an information-seeking perspective or from an education/lesson-planning perspective – focused either on teachers in one discipline (Science – Jantan, 1994; Perrault, 2005; Lenell, 2006; Dorward, Reinke, & Recker, 2002; Sumner et al., 2003; Recker, Dorward, & Nelson, 2004; Recker et al., 2007; Roehrig, Kruse, & Kern, 2007) (Social studies – Chung, 2000; Zhao & Hoge, 2005) or on samples of teachers selected on non-disciplinary facets (e.g., planning model, Sardo-Brown, 1990; single-school case study, Thomas, 2002; head start, Venn & McCollum, 2002; distance learning, Hart, 2008). Given this study's observations concerning the influence of content standards and learning goals on content selection, it appears as though there is some interplay between Domain (i.e., curriculum characteristics) and Role (i.e., subject taught).

Aside from the findings that related to the learning goals' subject areas, there were surface-level differences in the searching behaviors of English teachers versus social studies teachers. Specifically, English teachers submitted fewer queries, watched fewer segments, and added fewer segments to their lesson plans than social studies teachers. However, English teachers watched individual segments for longer than did social studies teachers. The dense descriptions of each teacher's workshop activities allowed for case-by-case examination and explanation of search behaviors (e.g., see the comparison of Mary's browse-orientation with Jimmy's search-orientation in Chapter 5, Section 5.2.2.2),

but it remains to be seen whether and why these disciplinary differences would be seen in other situations.

7.2.3.2 Amount of teaching experience

Chung (2000) found similarities and differences in the planning processes of novice and experienced social studies teachers. Experienced teachers were found to be more versatile in finding outside resources for their lesson plans. Sardo-Brown (1990) reports that experienced teachers use notebooks or unit folders to gather notes and materials that supplement course texts, to record what does and does not work as lesson plans are implemented, and to organize instructional content by theme. This study's findings concur: novice teachers Alan and Ray were found to be more concerned with learning the school environment and getting used to the standards, leaving little time to look for content and otherwise customize their lesson plans. On the other hand, the study's more experienced teachers, like Cory and Lily, described their tried-and-true information sources, materials, and techniques for periodic evaluation and keeping their content organized.

7.2.3.2 Pedagogical stance

Clark & Peterson (1986) state that teachers' conceptual systems include implicit theories and principles of practice that influence plans and actions. Within otherwise homogeneous groups (subject taught, amount of experience, etc.), they found wide variation in implicit theories. Sardo-Brown (1996) found that teaching philosophy evolves with experience, and Borg (2006) describes "practical theories of teaching" as

conceptual structures that teachers use to make decisions and self-evaluate. Pedagogical stance is a blend of these constructs – conceptual systems, implicit theories, teaching philosophy, and practical theories of teaching. Pedagogical stance incorporates teachers' backgrounds and images of themselves and their students (Murray & Savin-Baden, 2000). As observed among teachers in this study, pedagogical stance involved the aspects of the work through which the teacher experiences enthusiasm and a vehicle for professionally-oriented self expression. Specifically, these teachers seemed to enjoy and embrace the opportunities their work afforded to use creative thinking and innovative techniques to facilitate meaningful connections between students and course content.

Especially in the current environment of standards-based public education, pedagogical stance is the vehicle through which teachers inject some level of individualism and self expression into the instructional process. Pedagogical stance plays out in content selection when teachers use favorite themes or techniques as frames and criteria for conceptualizing search topics and selecting from among potentially relevant segments. One example of this at the workshop occurred when Cory used the novel *Brave New World* to inspire students to think critically about the potential consequences of a politically numb, consumerist culture.

7.2.**4 Layers of Context: Task**

Findings Summary: Task

- Teachers used formal and informal analyses to construct multifaceted and dynamic portraits of their students' needs and abilities. Teachers were found to incorporate students' information needs into the overall information need profile.
- The lesson plans' explicit learning objectives were found to connect directly

> and indirectly with content selection by guiding teachers' attention to specific topics and goals.
>
> - The information needs of teachers who already knew how they would use selected content related to characteristics of the activity into which the media presentation would be embedded.

From the perspective adopted in this study, content selection as an information seeking task is defined in large part by its parent task, lesson planning. Chapter 2 described several research studies that documented characteristics of content selection by teachers who were planning lessons for science courses, Head Start programs, and distance education. None of these studies systematically explored the other aspects of lesson planning that influence or are influenced by content selection. Findings of studies about the entire process of lesson planning corroborate many of the findings from this study.

In his case study of a rural school's incorporation of newly imposed state-wide assessments, Thomas (2002) found that standards affected how time was distributed across different topics, but these effects did not carry over into individual content selection decisions. The current study's findings bring some nuance to this characterization: while *individual* content selection decisions might not be standards-based, the standards do play a role in shaping teachers' priorities and topical orientations. Specifically, this study's findings suggest that the narrative frameworks of different subject areas – and the standards that apply those frameworks – resulted in fundamental differences between how teachers of English on the one hand and social studies on the other selected and implemented the topics of their lesson plans. Since the primary access mechanism in most information search situations is topical, different underlying conceptions of what constitutes a topic mean that English teachers on the one hand and

social studies teachers on the other might approach the same collection of information from different ontological perspectives.

Teachers' cognitive styles, interests, and beliefs influence how they create lesson plans (Clark & Yinger, 1979; Munby, 1982; Sardo-Brown, 1990). This study found that some of these influences also occurred within the content selection subtask. Specifically, the aspects of context that described the teachers' needs, competencies, and pedagogical stances were all found to have implications for the information seeking process of content selection. Clark and Yinger (1979) found that lesson planning is not step-wise but cyclical. Teachers create and iteratively refine lesson plans in a process of "successive elaboration." This iterative nature is also a defining characteristic of the information seeking process (Soergel, 1985; Marchionini, 1995; White & Roth, 2009).

Outside resources can promote understanding and accommodate some of the variety in students' learning styles and abilities. For example, stories illustrate concepts and capture students' interest (Chung, 2000). This technique of using stories to engage students was one of the fundamental reasons for teachers' interest in attending the workshop and accessing the VHA's Holocaust survivor testimonies. Their decision-making within the workshop situation emphasized using the remarkable stories relayed by witnesses and survivors of the Holocaust to make course content relevant to students. Just as student interests and abilities drive teachers' selection of teaching strategies (Chung, 2000), these strategies, in turn, drove content selection.

To summarize, this study has identified and described five layers of context and factors of each layer that influence content selection. A teacher is a *Person* acting in a *Role* within an *Environment,* who accesses an *Information system* in order to complete a

Task. Characteristics of each layer influence the thoughts, criteria, and behaviors that comprise information seeking and selection. The diagram in Figure 7.1 represents how contextual factors imbue the information need.
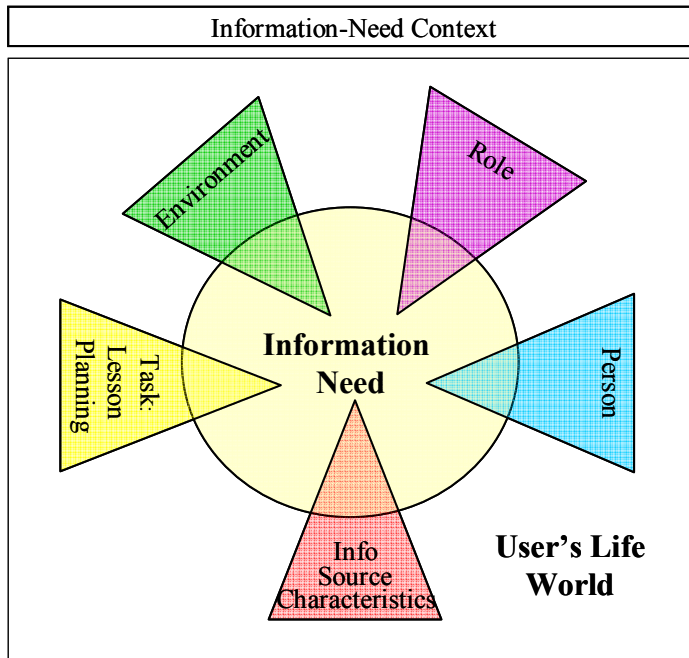
Figure 7.9. Information need context.

Within the realm of the User's Life World, each of the triangles represents a layer of context, which feeds into the Information Need. Only a portion of each context layer lies within the information need, since only some aspects of each contextual factor are active at any given situation-moment (and many factor aspects will never touch an information need).

7.2.**2 RQ2: What are the characteristics of the information search process when teachers select lesson plan content?**

As described in Chapters 4 – 6, this study found that teachers' thoughts, activities, and processes during content selection grouped into two categories that describe different, yet interrelated, facets of information search. These categories, Conceptualizing and Actualizing, offer a different way of sorting and understanding the components that make up this well-documented process of information search. While Conceptualizing and Actualizing might be novel labels for a bird's eye view of the search process, the individual concepts that populate these two categories are consistent with the kinds of stages, activities, and processes that have been represented in other models of information search. Chapter 2 included a comparison of the models offered by Soergel (1985) and Marchionini (1995). These two models are similar in scope and in their emphasis on describing information search in terms of the thoughts, strategies, and behaviors that instantiate it. Both authors highlight the iterative and interactive nature of the search process. Table 7.1 shows how the information search processes found in this study map to the concepts that comprise Soergel's and Marchionini's models.

Table 7.1. Search processes and tools from current study mapped to Soergel's (1985) functions and Marchionini's (1995) subprocess of information search.

	Lawley processes & tools (2011)	Soergel functions (1985)	Marchionini subprocesses (1995)
Conceptualizing	LC1. Goal definition	**S1** Recognize and state need	**M1** Recognize, accept information problem
	LC2. Transforming information need into query	**S2.1** Formulate query conceptually **S2.3** Translate conceptual query into source language	**M2** Define and understand problem **M4** Formulate query
	LC3. Learning about topic	**SA** Interact	**M7** Extract information
	LC4. Learning about system	**SA** Interact **SB** Monitor	**M8** Reflect/iterate/stop
	LC4.1 Learning by exploration	**SB** Monitor	**M8** Reflect/iterate/stop
	LC4.2 Learning by trial-and-error	**SB** Monitor	**M8** Reflect/iterate/stop **MA** Subprocess transitions
	LC4.3 Learning by system analysis	**SB** Monitor	**M8** Reflect/iterate/stop
Actualizing	LA1.1 Organizing search process	**S2.1** Formulate query conceptually **SA** Interact	
	LA1.2 Searching and browsing	**S3** Execute the search strategy	**M5** Execute search **M6** Examine results
	LA1.3 Serendipity	**S1** Recognize and state need **SA** Interact	**M1** Recognize, accept information problem **M6** Examine results
	LA3.1 Boolean operators, quotation marks, syntax & phrasing	**S2.1** Formulate query conceptually **S2.3** Translate conceptual query into source language	**M4** Formulate query
	LA3.2 Thesaurus	**S2.3** Translate conceptual query into source language **SA** Interact	

Legend: LC – Lawley Conceptualizing; LA – Lawley Actualizing; S – Soergel; M – Marchionini. Soergel & Marchionini items denoted by a letter A or B rather than a number are orthogonal, ongoing processes.

7.2.2.**1 Conceptualizing**

Findings Summary: Conceptualizing

- The teachers with ill-defined content selection goals (i.e., unformed lesson plans) experienced frustration and anxiety. These teachers found instructional ideas more from fellow teachers and other education-oriented resources than from the testimonies themselves. Teachers who had goals in mind (in the form of instructional ideas and objectives) when they began their searches reported almost no frustration or anxiety, even when individual queries were unsuccessful.

- While formulating queries, some teachers combined their understanding of the information need with expectations about the archive's content. In this combination, they sought concepts that might be held in common between the information need and the survivor testimonies. Their query terms represented these concepts. The teachers varied in their levels of awareness that retrieval results depended on query-surrogate term matches.

- Continued interactions with the information retrieval system were found to help some of the teachers increase the accuracy of their search expectations and the clarity of their understanding of the information problem.

- The teachers oriented themselves to the information system by using exploration, trial-and-error, and analysis of system mechanisms.

As described in Chapter 5, the Conceptualizing facet includes the thought- and behavioral processes that deal with the conceptual aspects of information search. Conceptualizing involves *setting goals*, *transforming information needs into system queries*, and *learning about the topic and the system* as a search proceeds. As illustrated in the paragraphs below, these three components of conceptualizing have been found in other studies to relate to each other in several ways.

7.2.2.1.**1 Setting goals**

This study's findings presented the initial information need in the form of a goal. This particular frame of reference might be an artifact of the study setting in that teachers'

participation in the workshop assumed an existing information need that could potentially be satisfied by using the VHA. While Soergel's (1985) and Marchionini's (1995) models describe the information seeking process from its inception as a visceral need (Taylor, 1962) or a problem, this model takes for granted that information search will ensue and begins with an articulation of the teachers' goals.

This study found that the clarity of a teacher's goal definition going into the search process affected feelings of purpose and control over the situation. Vakkari's statement, "Ill-structured problems lead to ill-structured searches" (1999, p. 833), tidily summarizes the relationship between the teacher's goals for content selection and their information search experiences. Many research perspectives on information search include consideration of searcher goals. Goal formation is the first of four stages in Armbruster and Armstrong's (1993) search process model. Often the goals for information search are described as inheriting from the underlying problem or task that prompted the information need (Soergel, 1976; Belkin, Oddy, & Brooks, 1982; Belkin & Vickery, 1985; Bystrom & Hansen, 2002). Rose & Levinson (2004) studied Web searchers' underlying goals and found that goal taxonomies can inform improvements in search engine algorithms and interfaces. According to Dewdney & Michell (1997), goals can have hierarchical relationships with each other. Understanding of a goal's subordinates and superordinates can result in greater understanding of the underlying information need. While Dewdney & Michell's observation was meant to apply to the human-human reference interview, the same observation could be used to enrich communication between a user and an information system.

Xie (2000) describes different levels of goals involved in the information seeking process. Long-term goals and leading search goals connect the parent task or problem with an information need. From the information need comes the current search goal, which is realized through one or more interactive intentions, the retrieval goals for individual search strategies. Vakkari (1999) draws a connection between task structure and complexity: the less structure a task has (as measured by its level of determinability), the more complex it is. Vakkari's (1999) model of task complexity and information actions states that the greater the match between the searcher's conceptual structure and the level of task complexity, the better able is the searcher to specify a query and recognize useful information. This level of conceptualization parallels Kuhlthau's (1991) formulation stage, at which the searcher synthesizes collected information into a meaningful focus and experiences an emotional shift from confusion and frustration to clarity (Yang, 1997; Pennanen & Vakkari, 2002; Hyldegard, 2006; Todd, 2006).

7.2.2.1.2 **Transforming information needs into queries**

Transformation of the searcher's conceptualization of the information need was found to be a sub-process of information searching. In some cases, teachers also used their conceptualizations of the workshop system to try and construct queries that were more likely to match with system surrogates. System designers should take into account the need for transformation to happen in increments that make sense for the searcher. Even if an interface allows a searcher to express every conceivable dimension of the information need on the first try, the searcher's recognition of these

dimensions and ability to articulate them might not exist until one or more full or partial cycles of query-review-evaluate-refine have been completed.

This transformation activity is comparable to selected factors from Soergel's (1985) functions of the search process. First, *S2.1 Formulate query conceptually* describes starting with a freeform description of the information need and then systematically specifying the following:

- query facets,

- related concepts,

- possible subsearches,

- selection criteria, and

- informational and formatting requirements for system output.

Second, *S2.3 Translate conceptual query into source language* entails expressing each concept of the conceptual query in the language of the information system, with consideration given to syntax, vocabulary, and relationships. Aspects of two of Marchionini's (1995) subprocesses map to LC2: *M2 Define and understand problem* and *M4 Formulate query*. During M2, concepts and relationships of the information problem are articulated as an information search task, and the information need is "limited, labeled, and a form or frame for the answer is identified" (Marchionini, 1995, p. 52). Subprocess M4 involves matching that task understanding with characteristics of the information system. This involves two types of mapping: semantic mapping (from natural language to system language) and action mapping (from user strategies to system functions) (Marchionini, 1995).

When teachers work on lesson plans, they think about matching elements of those lesson plans with the needs and interests of their students and the demands of the mandated curricula and assessments (Sardo-Brown, 1990; Chung, 2000; Thomas, 2002). This in itself is an information-rich and cognitively demanding task (Clark & Peterson, 1986). When the indexing and search mechanisms of the workshop system were ill-suited to the teachers' experience of the need for content, they had to pull cognitive faculties away from lesson planning and invest them in searching for the "magical" syntactic-semantic formula that would retrieve usable content.

The information retrieval system used in this study did not have a mechanism for browsing without submitting an initial search. The only browsing support was within a query's results set; there were no hyperlinks connecting segments by descriptor, interviewee, or any other facets. Each results set contained, at maximum, the top 100 hits for a query. Hence, the only way to retrieve a segment was to formulate a query that matched the segment *and* ranked it among the top 100 hits. In this environment, the quality of query construction was the sole factor that determined whether a segment would be seen or not seen.

The abundance of existing research on user queries lacks a collection of systematic, qualitative studies on the relationships between individual queries and their underlying information needs. A considerable sector of query research involves collecting transaction logs from one or more information retrieval systems and analyzing the queries for strategies and tactics, proficiency levels, and categories of information need (Fidel, 1991; Chen & Cooper, 2002; Wildemuth, 2004; Phan, Bailey, & Wilkinson, 2007). These studies frequently examine interactions between

and among query characteristics and other dimensions of information seeking, such as task situations and user types (Bailey, White, Liu, & Kumaran, 2010). Log analysis studies have been known to include information need as a variable of study, but information need or search goal is inferred by analyzing searchers' system interactions (e.g., links followed, dwell time) (Broder, 2002; Downey, Dumais, Liebling, & Horvitz, 2008). In their study of Web queries, Downey et al.'s (2008) methodology was based on the assumption that the query is an expression of the search goal. The search goals and content needs described by teachers in this study were multidimensional and nuanced. Even though most of the search goals included more than one concept, the majority of teachers' queries were mono-topical. So, rather than the query being an expression of the search goal, it would be more accurate to say that the query is a representation of some aspect or aspects of the search goal. Not only are search goals multi-topical, they also include non-topical features, such as *Expressive Power, Vocabulary,* and *Populations Represented.* Due in some part to the difficulty in creating surrogate representations of these facets of video segments, they were rarely or never included in teachers' queries.

7.2.2.1.3 Learning about topic, system, and information search

Several different kinds of knowledge can be at play during information seeking. Knowledge can be declarative ("I know that …") or procedural ("I know how …") (Choo, Detlor, & Turnbull, 2000) and can pertain to the topic/information task, the problem space/work task, or the information search process (Vakkari & Hakala, 2000; Bystrom & Hansen, 2002; Ingwersen & Jarvelin, 2005; Freund, 2008). In this study,

lack of knowledge about the information search process or the information system was the greatest barrier to efficient and successful content selection. The teachers were competent and comfortable discussing pedagogy and subject content, including the themes, events, and literature they addressed in their lesson plans. Whenever opportunities arose during the workshop to learn about pedagogy (from Holocaust-teaching instructional sessions and teacher-to-teacher discussions) or the Holocaust (from workshop instructional sessions, teacher-to-teacher discussions, the thesaurus, and the testimonies), teachers were eager to seize an opportunity for self-enhancement. Learning about information search was not seen the same way. The workshop system was seen as a tool for accessing content, and any instances in which teachers had to learn how to use the system (by themselves or via consultation) were not embraced or seen as usable beyond the workshop.

7.2.2.**2 Actualizing**

Findings Summary: Actualizing

- Queries on broad or abstract concepts were submitted more by the English teachers than by the social studies teachers. Queries on narrow or specific concepts were submitted more by social studies teachers than by English teachers.

- In some cases, teachers' sequence of queries paralleled the conceptual structure of their lesson plans.

- Most of the teachers browsed the thesaurus to get a sense of the workshop collection's conceptual construction. Two found thesaurus descriptors that were interesting enough to seed new lesson plans or activities.

- Most of the teachers did not seem to understand the benefits of using thesaurus descriptors verbatim in their queries, nor did they tend to look in the

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thesaurus for descriptors that represented their polysemous query concepts.

The actualizing facet of the information search process concerns the processes and tools with which the teachers implemented content selection. The ways that teachers interacted with the workshop information system – organizing their searches according to cognitive style and task characteristics, using targeted queries to search precisely or broad queries to browse more broadly, accepting instances of serendipity, and interacting with system mechanisms – coincide with the strategies and behaviors that characterize the area known as exploratory search.

In summary, the information search process includes two facets: Conceptualizing and Actualizing. The individual processes and functions that comprise these dimensions include cognitive and behavioral aspects, and occurrences of information search see these processes and their products feeding into each other.
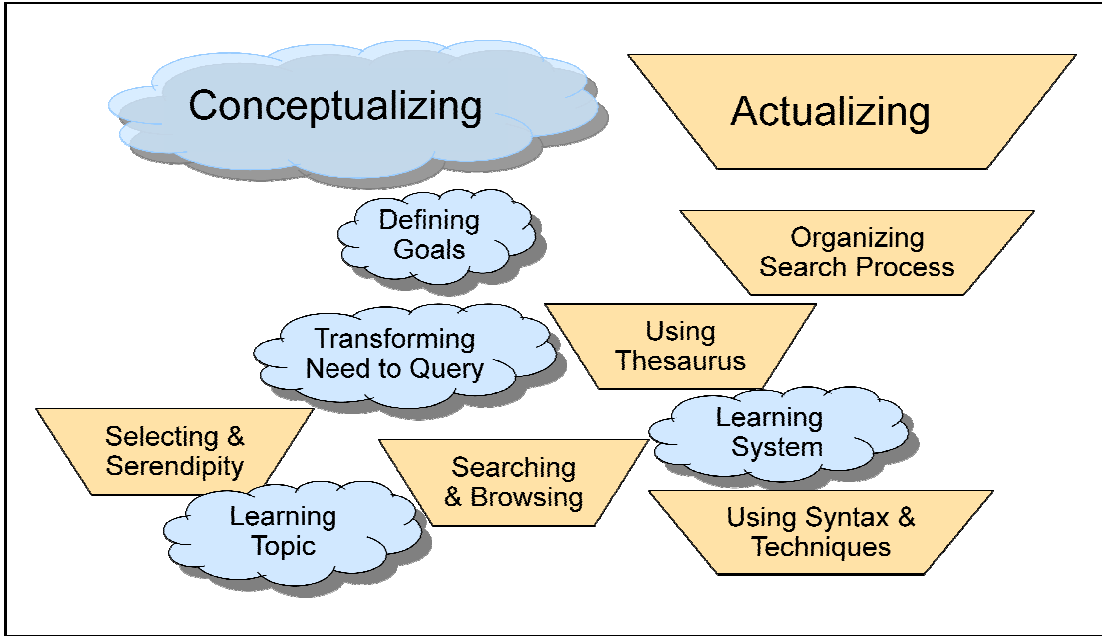
Figure 7.2. Facets of the Information search process

Figure 7.2 is a diagram of the two facets of Conceptualizing and Actualizing. The behaviors and processes that instantiate conceptualizing and actualizing comingle and feed into each other. In different information search situations, the behaviors and processes might be arranged differently, and some may occur less prominently than others (or not at all).

7.2.**3 RQ3: What relevance criteria do teachers use to search for and select lesson plan content?**

This study identified 23 criteria that teachers used or wanted to use. The criteria, grouped into nine categories, are listed in Table 6.1, duplicated below from Chapter 6.

Table 6.1 (Duplicated). Relevance criteria identified in current study and Lawley,
Huang, & Soergel (2005).

	2005	2011
1. Relationship to topic	x	x
2. Relationship with other pedagogical units/concepts	**O**	**O x**
2.1. Relates to other schoolwork	x	x
2.2. Variety for the classroom	x	x
2.3. Unique pedagogical impact		x
2.4. Vocabulary	x	x
3. Characteristics of the story	**O**	**O**
3.1. Role of interviewee in Holocaust events	x	x
3.2. Positive message for students	x	x
3.3. Present-day/real-world issue		x
3.4. Shock value		x
3.5. Music to engage students		x
4. Relationship of story to student	**O**	**O**
4.1. Students connect with passage	x	x
4.2. Students identify with interviewee	x	x
4.3. Radical difference from students' reality	x	x
5. Populations represented	**O**	**O x**
Age of interviewee at time of described event	x	Two of several characteristics collapsed into #5.
Race	x	
6. Characteristics of oral history	**O**	**O**
6.1. Expressive power	x	x
6.2. Storytelling quality		x
6.3 Language and verbal expression	x	x
Nonverbal communication	x	
6.4. Diction	x	x
6.5. Flow of interview	x	x
7. Appropriateness	**O**	x
Developmental appropriateness	x	x
Acceptability to stakeholders	x	
8. Technical production quality	x	x
9. Length-value ratio	x	x
O = container **x = criterion**		

Findings Summary: Relevance Criteria

- The criteria identified in this study were found to be the instantiation of contextual characteristics that acted as mechanisms for specifying the information need and evaluating products of information search. In each selection situation, some criteria were found to be must-haves, while others represented aspects of testimony segments that the teachers found suitable, unsuitable, or desired-but-absent. Segments that had poor production quality or whose speakers were difficult to understand were eliminated, regardless of their content. One teacher provided an exception to this: she sought examples of heavily-accented speakers to promote cross-cultural understanding and tolerance.

- In some situations, especially among the English teachers, the primary information need was expressed through criteria other than topicality. In these cases, teachers wanted segments that would fit the requirements of a certain activity (like Wendy's activity plan for students to compare the VHA stories with the theme of Filial Piety as depicted in the Greuze painting) or learning outcome (like a search for content that would meet the county's standard: "Analyze and evaluate the purpose and effect of non-print texts" ("Green" County Public School System, 2006)). Since the workshop collection's metadata did not include descriptors of these activity- and learning-oriented criteria, the teachers had to substitute topicality for their actual criteria during query formulation. This substitution required identifying topics (as conceptualized by SFI indexers) that had potential for returning segments that would meet the actual criteria. This transformation required teachers to ask, *What kinds of topics would be described in a segment that meets my pedagogical criteria?*

Taylor (1991) says that the elements of information use environments, which are highly similar to this study's layers of context, "determine the criteria by which the value of information messages will be judged" (p. 218). The criteria that teachers used in this study to describe (via query) and select video segments support this claim. Other than the Lawley, Huang, and Soergel (2005) study of teachers' use of the same collection (VHA), we found no previous studies of teachers' information seeking during lesson planning that have enumerated selection criteria. The criteria

identified in this study will be discussed and contextualized relative to some of the findings from studies about lesson planning.

As was described in Chapter 6, many of teachers' relevance criteria could be traced to the strategies and techniques they used in the classroom. Of the criteria described by teachers in this study, the most popular and frequently used one involved finding content that would support students' engagement with course material because it made connections between course concepts and students' lives and interests (Chung, 2000; Thomas, 2002). Sardo-Brown (1990) reports that when teachers construct lesson plans, they consider environmental factors such as characteristics of students' home lives and the broader community. Chung (2000) studied lesson planning by social studies teachers and found them especially conscientious about incorporating awareness of student diversity into their lesson-related decisions.

Criteria can be used in the query to specify desired document features or they can be used while viewing, comparing, and considering a results set. Criteria can also be used after an item has been selected or rejected if some shift of the information need context moves the teacher to reconsider the segment in a different light. Criteria can exist at the forefront of the teacher's mind at the outset of information seeking ("I'm looking for … ") or they can align with segment features that teachers particularly liked or disliked upon viewing a segment, even though they had not previously occurred to the teacher. Serendipity could be defined as a phenomenon that occurs when the only criteria that are used are those that materialize as a reaction to a segment, and the values of these criteria result in a selection.

Figures 7.3 – 7.5 depict examples of how relevance judgment can transpire. The judgment process occurs in the space between two points:

1. A source (e.g., a segment), and

2. A decision to select or reject the source.

This space is occupied by all potential relevance criteria. For clarity's sake, a subset of criteria is depicted in the diagrams; conceptually, all possible criteria are "eligible" for activation during any given judgment procedure.
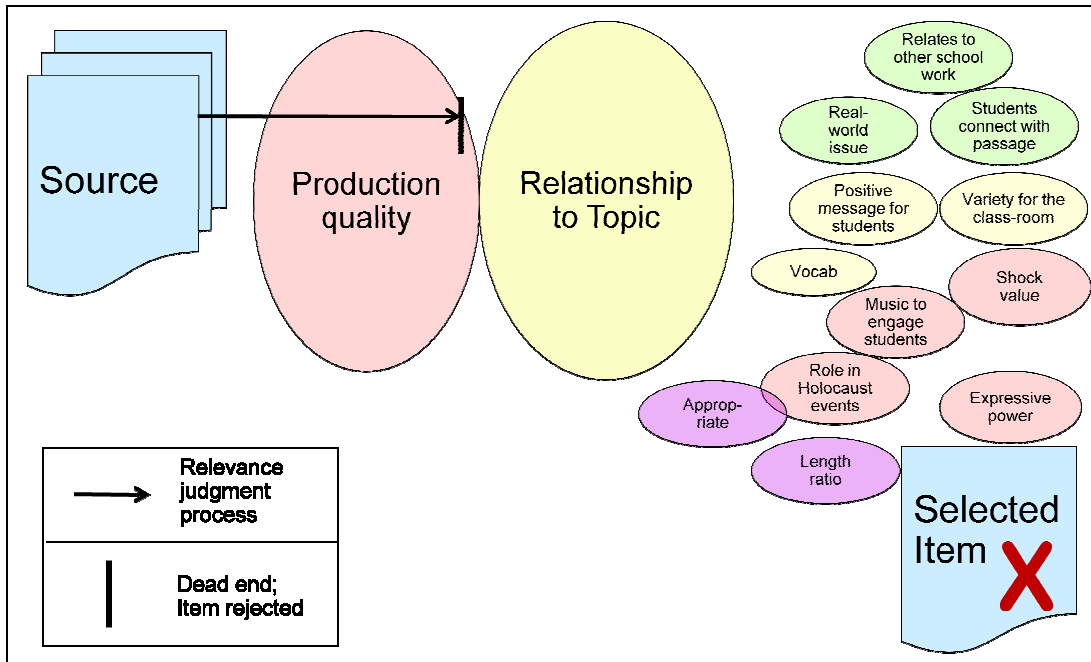
Figure 7.3. Relevance judgment process: Item rejected due to Production quality.

In Figure 7.3 the vector that signifies the relevance judgment process starts at the source (or, more specifically, the source or its surrogate as cognitively experienced by the user) and finds a dead end within the *Production quality* criterion. This scenario might occur if a teacher clicked to view a segment whose metadata looked promising only to find that the segment's audio was corrupted, causing frequent distortions of the interviewee's speech. In a case such as this, the values of any other criteria would be irrelevant because no matter how good the segment's content was, the poor production quality would categorically disqualify the segment from being presented in the classroom.

In the diagrams of the relevance judgment process (Figures 7.3 – 7.5**)**, *Production quality* and *Relationship to topic* are disproportionately large. Their size and position represent the degree of necessity that these criteria be satisfied before

other criteria are considered. *Production quality* occupies the space nearest to the source because in practice, it is difficult to "get around" flaws that occlude the information so that one can consider the source's other qualities. *Relationship to topic* is also very prominent because, as has been widely established, topicality is almost always the central criterion used during relevance assessment. Nonetheless, its position in the diagram allows plenty of space between source and selection where topicality can be ignored and other criteria used. For example, a teacher might want to allow students to spend some time watching testimony in order to experience the interviewees' stories and the distinctive format of oral history. In such a case, *Relationship to topic* would not enter into the teacher's judgment process, but *Students connect with passage* and/or *Expressive power* might.
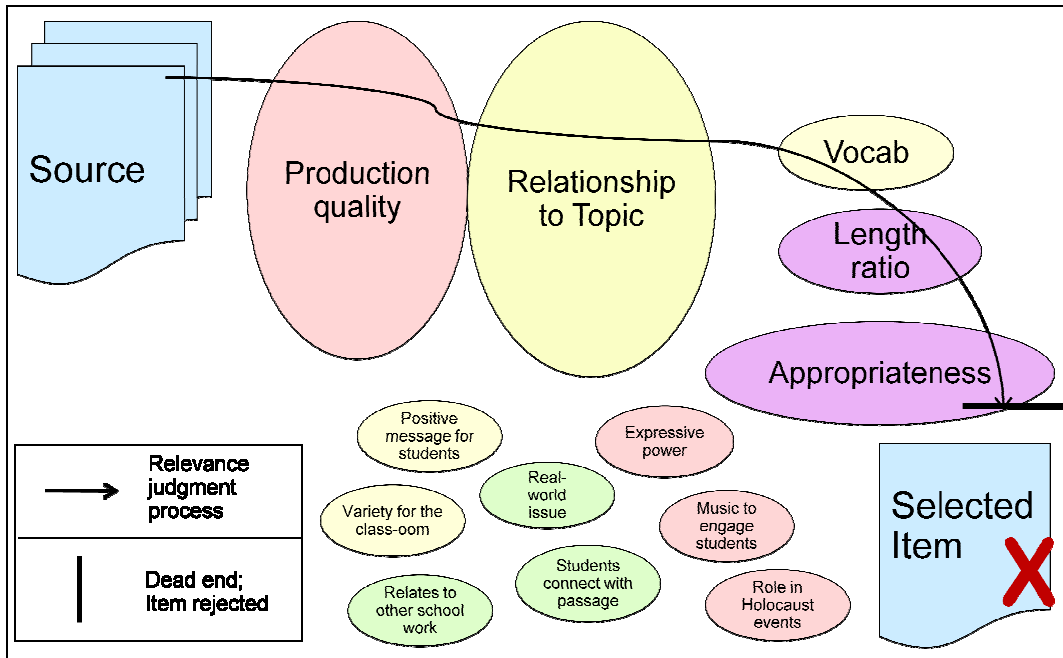
Figure 7.4. Relevance judgment process: Item rejected due to Appropriateness.

For teachers using the VHA, the *Appropriateness* criterion can also present a prominent barrier between source and selection. In Figure 7.4, *Appropriateness* is positioned nearer to selection than source because teachers are more likely to weigh appropriateness against the source's value on other criteria. This exemplifies a delicate balance teachers must strike when presenting the Holocaust to students: How to convey the information of the Holocaust, which is inherently horrific, without traumatizing students? The size and position of the *Appropriateness* criterion in Figure 7.4 depict how that conundrum might "look" during relevance judgment. Other collections and contexts would call for different labels, sizes, and positions of criteria.

Figures 7.3 and 7.4 have portrayed situations where a criterion presented a dead end, resulting in rejection of a source. In Figure 7.5, the source is selected. The

criteria through which the judgment vector pass represent the qualities of the source that made it appealing enough for the teacher to select for use in the current situation.

In most cases of teachers' information seeking during the workshop, their selection decisions were examples of satisficing, rather than optimizing (Simon, 1955). Satisficing is a type of decision making whereby the user's selection threshold is lower and less rigid than the threshold of someone who is driven to find something exact or optimal. The inclination to satisfice is driven by the constraints of the situation (Mon, 2006). The costs of ceasing information seeking with satisfactory selections in hand are weighed against the costs of continuing to review and evaluate options (Marchionini, 1995). Satisficing behavior was also seen in the teachers who used the VHA to plan lessons in a previous study (Lawley, Huang, & Soergel, 2005). Given the intense time constraints presented by the workshop format and other aspects of teachers' work, it comes as no surprise that an integral part of their decision making involved knowing when to stop and move on, even if it meant reshaping expectations or information use plans to adjust to the characteristics of information objects that were within (subjectively determined) reasonable reach.
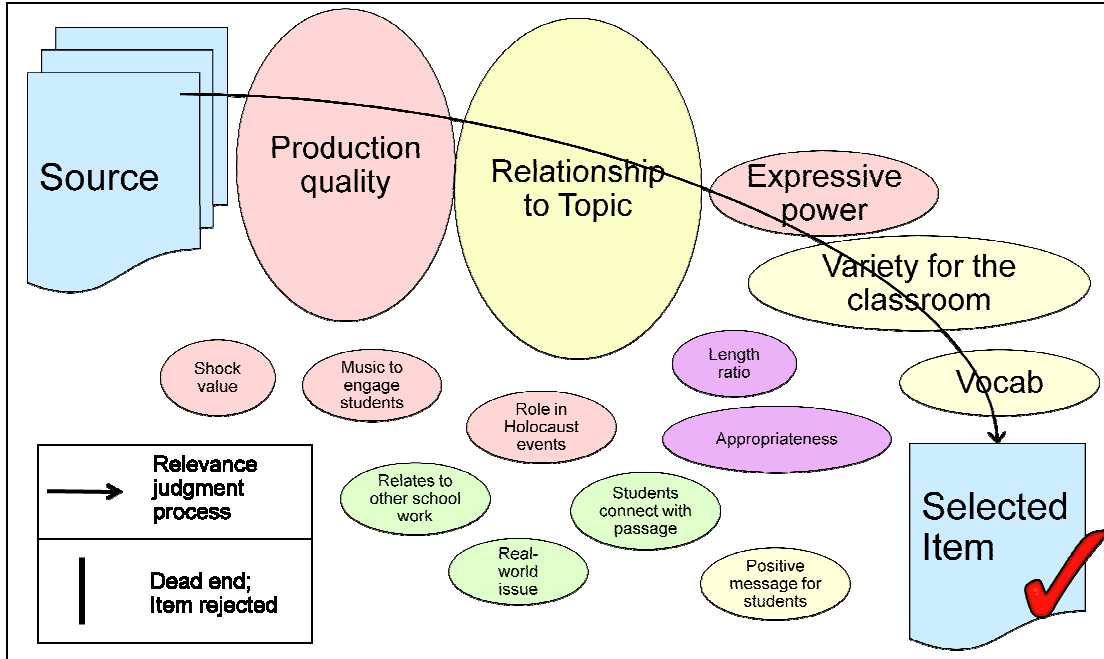
Figure 7.5. Relevance judgment process. Item selected.

In summary, teachers' relevance criteria are the situationally-embedded embodiment of contextual layers that apply to information seeking. This study identified and described 23 criteria which fall into the categories of topical, pedagogical, and practical. The process of judging relevance involves evaluating information entities (e.g., segments) according to whichever criteria are salient and important in the situation. Criteria can arise in the teacher's mind at different times in the information seeking process (including before and after interactions with a retrieval system), and their importance can ebb and flow according to shifts in any aspect of the context.

7.3 Model of Context-Embedded Information Seeking Process

A person engaged in a task sometimes reaches a point where movement through the task calls for the use of information other than that which she or he currently possesses. This point is experienced by the person as an information need. Exploratory search, which has been the focus of this study, is among the possible reactions to an information need. Other possible reactions include known-item search, fact finding, working around the need, and abandoning the task. The information needs that motivate exploratory searches are constructed from components of the person's life-world or context. The layers of context explored in this study are Environment, Role, Person, Task, and Information Source. Some contextual components are realized as the criteria people use to formulate searches and select information objects that alleviate the information need. Other components determine the manner in which the person thinks, learns, and behaves during the process searching for information.
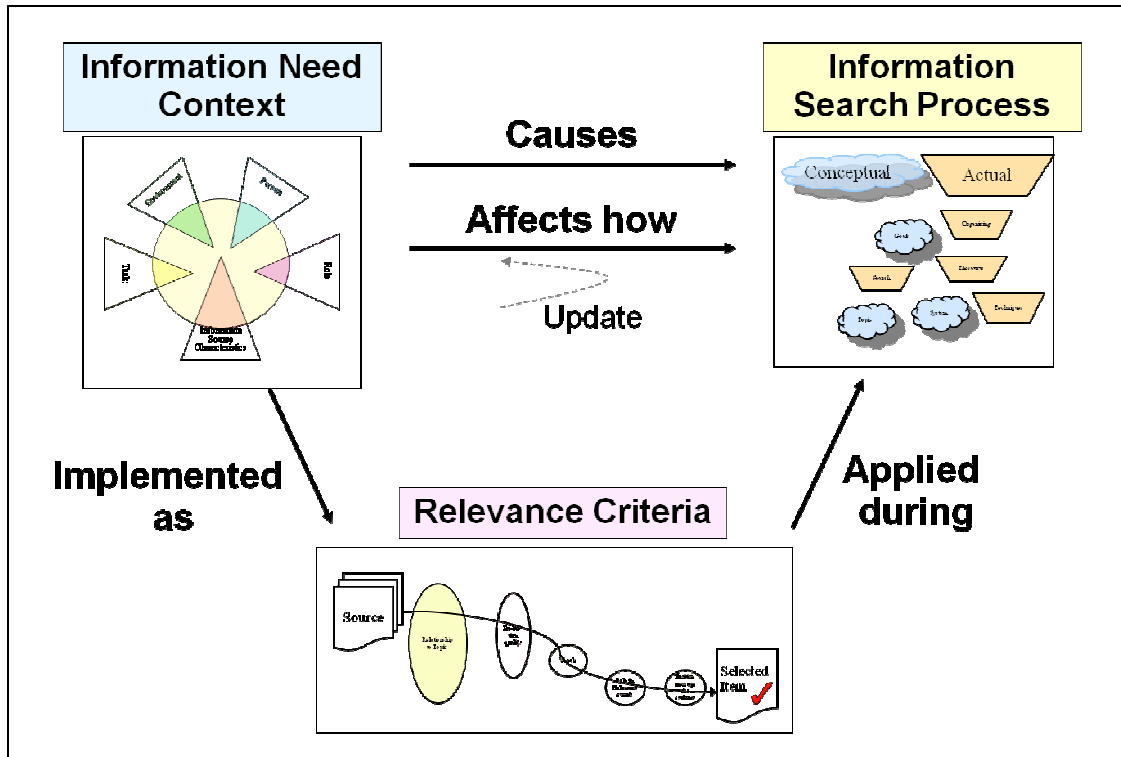
Figure 7.6. Model of Context-embedded Information Seeking Process.

Figure 7.6 depicts the three elements of the information seeking process and the relationships among them. The information need context represents the situation that gives rise to the information seeking process; the information need *causes* information search. Also, aspects of the information need context – including the underlying task, the person's needs and competencies, and the characteristics of the information system – *affect how* the information search process will play out. Relevance criteria are the *implementation of* the aspects of the information need context that specify the characteristics of needed information. The user *applies* these criteria during interactions with an information system such as searching, reviewing, and selecting information objects. These interactions with the information system can result in changes in the information need context. When these changes occur, the

updated context might adjust the attributes used for relevance judging and/or the kinds of thoughts and behaviors that define the user's conceptual and actual interactions with the information system.

7.4 Contributions and Implications in a Larger Context

7.4.1 Information Need Context, Information Search, and Relevance Judging: Review of Contributions

This study offers several contributions to the literature about information seeking (information studies) and content selection for lesson planning (education). The findings of this study offer a systematic and detailed depiction of how a group of teachers searched for and selected content for their lesson plans from a multimedia collection of testimony from witnesses and survivors of the Holocaust. Each section of findings – Information Need Context, Information Search Process, and Relevance Criteria – includes findings about content selection and information seeking that corroborate findings reported in the literature as well as findings that, to our knowledge, have not been reported before.

The conceptual framework introduced in this study drew on and expanded existing models of context-embedded information seeking and relevance. By combining context characteristics from models by T.D. Wilson (1981, 1997) and Vicente (1999), this conceptual framework allowed for systematic study of the information need context. A strength of this framework's depiction of context is that it is general enough to be applied to a variety of information seeking situations (it is intended for application in work-based settings; other applications might or might not

be as successful) yet specific enough to generate a nuanced picture of the research phenomenon. The information that was generated from this study of teachers' information need context during content selection from the VHA contributes new insights about the consequences of forces that influence the teacher-in-context during lesson planning and content selection. These forces, as described in the study's findings, include state-mandated standards and curricula, ontological characteristics of teachers' subject disciplines, characteristics of students and the community beyond the school, individual components of the lesson planning task, and the information source. In these findings, a relationship has been rendered that connects information seeking with standards-based education and features of the community.

After starting with a traditional depiction of the functions and processes of information search, the conceptual framework's representation of teachers' content selection took on new shape in order to accommodate the themes that arose from the data. The resulting "shape" of the information search process (specific only to content selection by teachers in this study setting) includes two facets of thoughts, behaviors, functions, and processes that play into each other throughout the process. These interrelated facets, conceptualizing and actualizing, represent information search as a process that is active and cognitive. This depiction of the search process, to the researcher's knowledge, provides a novel perspective for organizing and examining the things people think and do when they interact with an information system. The thoughts, behaviors, functions, and processes of information search have been systematically connected with characteristics of the information seekers and the multi-layered contexts from which they came.

The teachers' relevance criteria for selecting content from the VHA have been listed and described with details of how and why they used those particular criteria. Most of these criteria are in common with the ones identified in a previous study of teachers using the VHA for an imposed lesson planning task (Lawley, Soergel, & Huang, 2005), so this study has also contributed some validation of the previously identified criteria. The teachers' relevance criteria have been shown to be tightly coupled with the information need context. From this research comes the suggestion that each relevance criterion is nothing more or less than the teacher's use of an element of context as a decision-making factor.

By identifying, verifying, and describing the details of teachers' needs, goals, characteristics, constraints, information seeking behaviors and processes, and criteria, this study presents a profile of teachers and their work that can be of theoretical and practical benefit for researchers and practitioners in education and information studies. This study was implemented in a narrowly defined setting and with a small group of self-selected participants, and as such its findings cannot be extrapolated or generalized without further study. However, the themes identified represent so many breadcrumbs that can be selected and followed in future studies.

7.4.2 Understanding Exploratory Search: The reference interview as interaction model

From this study of teachers' information seeking process for content selection during lesson planning has come a picture of a process that clearly is cognitive, contextual, active, dynamic, and cyclical. These aspects of information seeking are the defining

characteristics of exploratory search, a sub-type of information seeking during which the information need is open-ended and the user is more oriented toward gathering information than fact finding (White & Roth, 2009). As was found in this study and many others (e.g., Kuhlthau, 1991; Yang, 1997; Vakkari & Hakala, 2000; Pennanen & Vakkari, 2002; Tang, 2002; Vakkari, Pennanen, & Serola, 2003; Wildemuth, 2004; Freund, 2005), the user gradually constructs understanding of the topic, the conceptual space, the information need, and the information system over the course of an exploratory search process. While this construction is underway, the information need is changing because the user's knowledge state is continuously being updated (Dervin, 1983; Ingwersen, 1992). The process requires the user's constant engagement, even when an intermediary is present (White, 1981; Soergel, 1985; Dewdney & Michell, 1997) because the user must gradually and actively construct the ability to comprehend whatever information comes forth during or as an outcome of information seeking (Zhang, 2010). As stated in Chapter 2, the journey of information seeking during exploratory search is at least as important as the destination.

Teachers in this study used several techniques and mechanisms to forge their paths through the workshop system and arrive at acceptable information outcomes. These outcomes are not limited to the incorporation of segments into lesson plans. Other acceptable (although not necessarily sufficient) information outcomes include:

- learning new facts,

- making new connections among concepts,

- getting new ideas for searches or lesson plans,

- finding tools or techniques for more efficient use of the system,

- formulation and awareness of realistic relevance criteria, and even

- identifying where dead ends exist.

The techniques that were identified include exploration, trial and error, system analysis, searching and browsing. The mechanisms teachers used most were the segments and surrogates, the thesaurus, and the workshop system interface.

In traditional library settings, the reference interview (when well implemented) is widely known to be an efficient and often mutually instructive technique for articulating and satisfying information needs. During the reference interview, the user and librarian engage in a dialog during which the user is considered the expert on the information need (although not necessarily on the search topic) and the librarian is the expert on the information system (with system broadly defined to include the contents of the library and the mechanisms, policies, and procedures related to their access) (Sutton & Holt, 1985).

One way to describe the librarian's task is as an elicitation of the true information need (or as close to true as possible) and the interpretation of that need into a strategy that can be implemented within the current information system. Nordlie (1999) uses the term "user revealment" to describe the moment when a user is simultaneously aware of and able to articulate the information need in terms of search intentions. Talking through the information need *situation* or *context* with a trained librarian can help a user clarify for herself the definition of the information need, especially when, through the course of the dialog, the user learns what kinds of information and access mechanisms are available (technological, lexical, conceptual,

etc.). The outcomes of a good reference interview extend beyond a set of relevant documents or bits of information (*unless* the interview is a fact-finding or ready-reference type question, when a more efficient and speedy approach is warranted). The outcomes of a good reference interview also include the user's greater understanding of the information system and the coherent formation of relevance criteria that can be used for search and selection. Indeed, the acceptable outcomes of a reference interview are the same as the acceptable outcomes of a human-computer interaction with an information system, like the ones listed earlier in this section.

White (1981) identifies four dimensions of the reference interview, the first two of which are especially meaningful for the types of interactions being discussed here. First, the *structure* of a reference interview refers to how the conversation is arranged to achieve the intermediary's goals for the interview. The *coherence* of a reference interview is the user's perception of the interview structure. The greater the level of coherence, the more efficient and potentially satisfying the interview (White, 1981; Dewdney & Michell, 1997; Vickery & Vickery, 2004).

Some preliminary work has been done to use the reference interview as a model for information seeking in digital environments (Nordlie, 1999; Lin, Wu, Demner-Fushman & Abels, 2006; Lin, Wu, & Abels, 2008). Given the types of strategies and challenges that users have been found to experience in digital information seeking environments, there are most certainly mechanisms of the reference interview, especially coherence, that should be actively and intentionally incorporated into the design of interfaces for human-information interaction. Chen &

Dhar (1990) identified three categories of misconceptions that resulted in unacceptable outcomes with an information retrieval system:

- Subject area misconceptions,

- Classification scheme misconceptions, and

- System misconceptions.

Information system interactions can be designed to promote user revealment and mitigate misconceptions by using techniques that allow a high degree of coherence (Pejtersen, 1989).

Figure 7.7 plots the subprocesses of the reference interview as interactions among the three elements of the information seeking process that have framed the current study. Specifically, the Reference Interview is designed to *elicit* the Information Need Context so that the intermediary (librarian or information system) can *derive* a set of operational Relevance Criteria which can be *formulated and instantiated* as interactions with the information retrieval system.
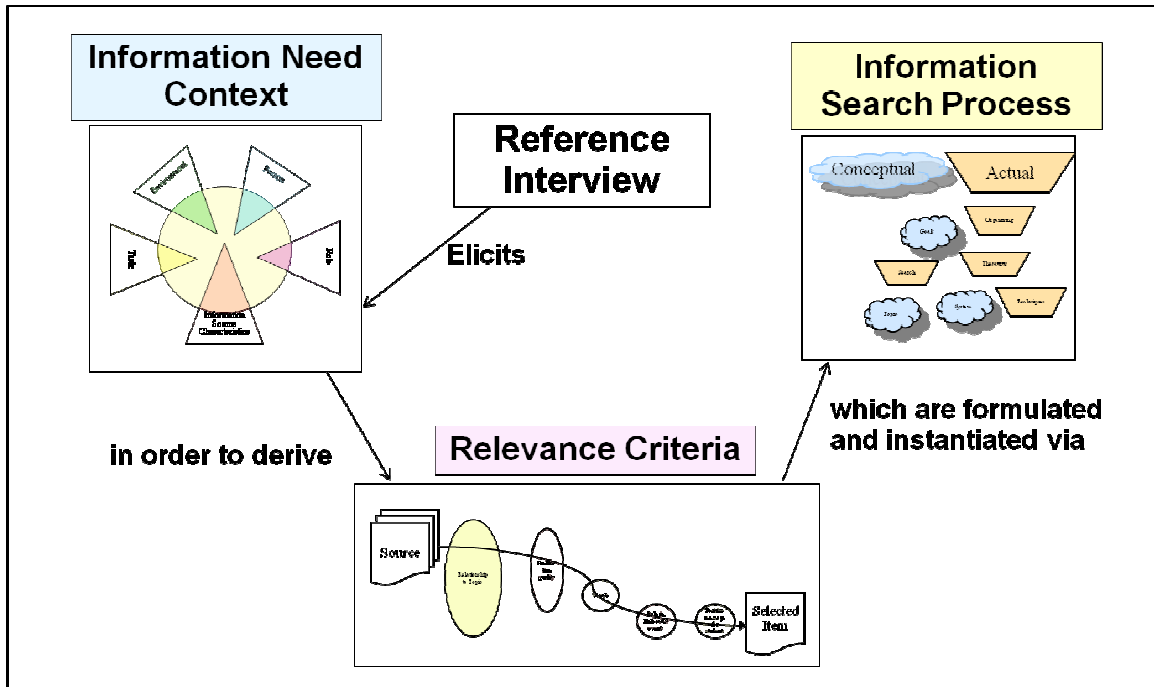
Figure 7.7. Reference interview as interaction model.

7.4.3 Personal Information Infrastructures

Even given its limitations as being aligned with a single information collection (the

VHA), the workshop system was unanimously embraced by the teachers. They were

excited about the idea of a unified environment for constructing their lesson plans and

searching for external content. One of the most resounding themes to come out of the

workshop was the potential value of a system that implements this idea on a greater

scale. Teachers want to be able to store, organize, and interchange information objects

that relate to their work. Teachers work in a fast-paced, multi-faceted, and

information-dense environment. Success in this environment requires the capacity to

continuously orchestrate all of the aspects of their work (Neuman, 2002). They are

required to move among several different types of information structures throughout

their many tasks, including lesson plans and their components, standards, policy documents, schedules, rosters, rubrics, assessments, and many more.

Teachers are known to use hard-copy and digital organization systems such as notebooks and folders to manage their materials (Sardo-Brown, 1990; Hedtke, Kahlert, & Schwier, 2001; Sumner et al., 2003; Recker, Doward, & Nelson, 2004; Hart, 2008). Marchionini (1995) describes "personal information infrastructures" (PII) as "an individual person's collection of abilities, experience, and resources to gather, use, and communicate information" (p. 11). A PII is not a collection of information. It is a construct for understanding the capacities and mechanisms by which a person can organize, access, use, and communicate information. By thinking about the work of teachers in terms of the PII construct, it becomes clear that the dynamic and complex nature of their day-to-day work could easily decrease the effectiveness of PII by virtue of the constant physical, temporal, and cognitive demands on teachers that can send them – physically and cognitively – in different directions.

Design implication: An integrated, one-stop, customizable system that seamlessly connects lesson planning and scheduling with collecting, annotating, manipulating, archiving, and sharing units of information could help to corral the informational aspects of teachers' work – a truly effective, mechanized Personal Information Infrastructure.

From the lessons learned in this study about how teachers select information and use it to seed or refine instructional activities and experiences, several design implications become clear as ways to optimize teachers' interactions with

information. Teachers need intellectual access to resources according to pedagogically relevant dimensions: standards, themes, literary works, grade levels, historical events and periods, and many more.

Design implication: Collaborative and social indexing environments hold a great deal of promise here, and they have been implemented with success in the realm of science education (Recker, Dorward, & Nelson, 2004). Rather than unnecessarily compartmentalizing teachers and their work products by linking the ability to collect instructional content with specific information systems (such as the Instructional Architect – NSDL relationship), this study's implications call for storage, meaningful indexing, and easy access of high-granularity information modules that teachers can collect, manipulate, annotate, and share.

7.4.4 Organizational Policy and User Involvement:

Design Implications for SFI

Information systems are partly characterized by the intentions of the organizations that create them. If designers of information systems think intentionally and systematically about the organization's goals, they can tailor specific aspects of the information system to the accomplishment of those goals. In the case of this study, the VHA was created by the Shoah Foundation (now the USC Shoah Foundation Institute for Visual History and Education, or SFI) whose mission is "to overcome prejudice, intolerance, and bigotry – and the suffering they cause – through the educational use of the Institute's visual history testimonies" (USC Shoah Foundation Institute, 2011).

SFI's strategic plan lists five areas of service and activity through which the organization pursues its mission:

1. Academic integration,

2. Teacher education,

3. Access to testimonies,

4. Preservation,

5. Acquisition of new content (USC Shoah Foundation Institute, 2011).

Of these, *Access to testimonies* provides a direct connection between SFI's mission and its information system, the VHA. The access mechanisms – indexing, thesaurus, and information retrieval interactions – have not been tailored to the characteristics of the manifold audiences whose access to VHA testimonies constitutes the "educational use" specified in SFI's mission. These audiences include students and educators at all levels – primary, secondary, undergraduate, graduate – as well as scholars, museums, and archives. The disciplines and emphases of these audiences include history, English language arts and literature, Jewish studies, psychology, tolerance, oral history, and many more. Each of these areas has its own jargon and – even more fundamentally – its own ontology and epistemology. The extent that any one audience's worldview and vocabulary deviate from the VHA thesaurus is the extent to which that audience might struggle with information access in the VHA environment.

When users browse the thesaurus and see the arrangement of indexing terms, they can increase their understanding of SFI's ontological approach to describing Holocaust survivors' testimonies. Where there is a fit with the user's topic and approach, this understanding of the thesaurus concepts and their relationships can

help the user think about the topic and gain useful ideas, as was found in several instances during the teacher workshop. This understanding can also shrink the gap between the user's knowledge and the indexing language, allowing for more efficient and effective identification of query terms. But it cannot help those situations where a user's information need has no matching concept in the thesaurus. The findings of this study are interspersed with examples of occasions where teachers had to overcome indexing gaps by "shoehorning" their information needs into existing thesaurus concepts or other factual-experiential, Holocaust-related concepts.

Design implication: By enabling collaborative description of segments through social tagging, SFI could more fully achieve its mission and open access to users with a broader range of needs and innovative or unexpected uses of VHA content. Social tagging can be free-form, as described below, or tightly structured, as implemented in the workshop system. Both forms can and should coexist.

Social tagging is the practice whereby people actively participate in an information environment by creating and applying labels to information objects in the environment. In free-form social tagging, these labels – or *tags* – are generated by the users who apply them; there are no formalized guidelines or controlled vocabularies in social tagging applications. Examples of tagging can be seen in the following online environments (and many more):

- www.Flickr.com (photos),
- Twitter (micro-messages),
- Blogs,
- www.Delicious.com (Web bookmarks).

Cultural institutions, such as The Smithsonian Institution, the Brooklyn Museum, and the Metropolitan Museum of Art have incorporated social tagging into their modes of describing and providing access to materials (O'Connell, 2007).

The practice of social tagging democratizes cataloging by allowing users to help themselves and others by incorporating their own meanings, interpretations, and tasks into the description of information objects (Avery, 2010). As with descriptors assigned by professional catalogers, identical tags assigned by users to two or more objects link those objects together. The utility of social tagging for knowledge management comes from the phenomenon known as "wisdom of the crowd," whereby the collective intelligence of a large group of people can match or exceed the contributions of a small group of experts (Surowiecki, 2004).

Social tagging cousins of thesauri, tag clouds and folksonomies, present aggregated representations of tags (grouped by user, user group, or across a defined collection of information objects). These representations depict term relationships and structures created from statistical associations between tags. Tag clouds and folksonomies can inform users (and managers) of an information source about the contents of the collection from the perspectives of people who use the source. Examination of tags can reveal the significance of information objects to user tasks (Tennis, 2006), allowing for indexing to become contextualized in detail. Furthermore, when a user applies a tag to an information object, the tag and the tag-object relationship are usually linked somehow to the user's profile within the system. This allows users (and managers) of the information system to visit user profiles and

glimpse the tagging habits and perspectives of the people who create individual tag-object relationships.

Social tagging and subject cataloging both have strengths and drawbacks. Cataloging (which has already been done by SFI) is systematic, consistent, and stable while being monolithic and static. Social tagging is dynamic, diverse, and user oriented while being unpredictable, disorganized, and redundant. Taggers have a personal relationship with the material whereas catalogers have a professional relationship with the material (Tennis, 2006). Because of this, tagging could be characterized as sensemaking, idiosyncratic, ad hoc, and situational, compared with cataloging, which is routinized, institutional, objective, and rational. SFI could implement these two practices in concert so that they could compensate for each other's limitations and extend VHA's reach and educational impact.

SFI has demonstrated a commitment to connecting teachers together, with the VHA as a common thread. Each summer, the Institute hosts a master teacher workshop with an emphasis on collaboration and a format that is roughly similar to the workshop described in this study. The SFI Web site includes a section for educators with links to such content as lesson plans, featured testimonies, educational products, and Holocaust teaching guidelines. The Teacher Innovation Network (http://sfiteachernetwork.ning.com/), another SFI initiative, is an online community where middle- and high-school teachers can explore testimonies, share lesson plans, and participate in forum-style discussions. Unfortunately, Network activity is sparse, and content can be difficult to find and download (users are required to install plug-ins in order to see each other's lesson plans). If the Teacher Innovation Network could

adopt design suggestions from this section and create an environment for the construction and selective sharing of personal information infrastructures, this could increase the Network's traffic and value for K-12 educators and their students.

7.5 Future Work

While the findings of this study can be applied to other contexts only with great care or not at all, they do present promising connections with existing research. The logical next steps are to look more broadly and deeply at teachers' content selection and to explore the prevalence of these findings in other work domains, ever seeking factors that influence the presence and intensity of phenomena that relate to the conceptual framework.

7.4.1 Future work in the education domain

Chapter 2 presented a conceptual framework of the information seeking process that combines three major elements: *Information need context*, *information search process*, and *relevance criteria*. From this framework arose six research questions. The first three questions call for characterizations of each of the three elements, and the second three questions call for explorations of the relationships among the elements. This dissertation dealt with the first three research questions in depth by characterizing the three elements in great detail. Although preliminary findings for Research Questions 4 – 6 appeared throughout the report of findings for Research Questions 1 – 3, thorough treatment of these latter questions requires closer, purposeful re-examination of the data with those questions in mind. The data

collected for this study should be rich enough to allow for such examination without having to return to the field for more data. In order to guide inquiry into interactions among the three elements of the information seeking process, Research Questions 4 – 6 ask:

4. How do characteristics of the information need context interact with the information search process?

5. How do characteristics of the information need context interact with relevance criteria?

6. How are relevance criteria used and refined during the information search process?

One of this study's limitations is that observation stopped at the end of the workshop. Another ripe idea for future research would be to go back to the teachers who participated in this study and learn how their workshop lessons and segments are being used in the classroom. An essential part of teaching practice comes in the ongoing processes of evaluation and revision of instructional elements, which are informed by student feedback and self reflection. With the wisdom of hindsight and five years' worth of implementation and revision, these teachers might have different perspectives on their workshop products. Guided by this study's conceptual framework, exploratory questions for the follow-up study would be:

1. What are the characteristics of the information *use* context?

    1.1. How are these characteristics different from the information need context as profiled in 2006?

    1.2. How have workshop materials influenced these contextual changes?

2. With respect to workshop lesson plans, what are the current characteristics of the information need context?

    2.1. What new information needs have appeared?

    2.2. Which previous information needs have changed, and how?

3. What are the characteristics of teachers' information seeking process during content selection?

    3.1. How does each teacher's information seeking profile compare with the profile that was created in 2006?

    3.2. How do teachers conceptualize and actualize while using different information systems than the workshop system?

4. Which relevance criteria have been used to make post-workshop decisions about segments and other media?

    4.1. How have relevance judgments changed following implementation of and reflection on workshop lesson plans?

This study's findings have highlighted some issues that warrant further explanation in new settings. Aspects of work domain and role are promising as variables for future studies, especially subject taught and curriculum. With respect to subject taught, it would be interesting and useful to look more broadly for the kinds of differences that were observed here between English and social studies teachers. Furthermore, studies that compare English and/or social studies with other subjects, such as science, technology, engineering, and mathematics (STEM), could indicate to what extent

design implications apply to teaching in general versus, for instance, teaching in

general, public high school teaching, or public high school history teaching. In what

ways, if any, can or should systems and processes be customized according to

different levels of the facets that define the domains and roles of teachers? Do

different state or local curricula introduce their own influences, even when other

factors are held constant?

Also in the realm of teachers' information seeking, the atypical position of the

teacher in the information need-selection-and-use scenario warrants much closer

examination. In most information seeking studies in recent years, the information

seeker and information user are the same person. The teacher's position in the

scenario is not the same as that of a professional intermediary because the teacher, as

the creator of the lesson plan, has a closer relationship with the information need than

a traditional intermediary (such as a librarian). This position, and the teacher-student

relationship in terms of proxy selection of information, should be explored further,

perhaps beginning with a review of literature pertaining to gatekeeping (Metoyer-

Duran, 1993), proxy searching, imposed queries, and lay information mediaries

(Abrahamson & Fisher, 2007).

7.5.2 Future work beyond the education domain

Although this study was implemented in an educational context, the conceptual

framework on which it was based was developed to guide analysis of information

seeking in any work-related context. This framework could be applied in other

settings in order to see whether its constructs are stable across different environments

and user groups. Within individual domains, it would be useful to gather rigorous, systematic descriptions of information need contexts and relevance criteria in order to understand how workers in situations translate their experience of the information need into the criteria they use to search for and select information. Since one of the elements of context in the conceptual framework is *Information source*, studies could be implemented that hold all other factors stable and use the information system as an independent variable. Furthermore, examining the influences of information need context and relevance criteria on the conceptualizing and actualizing facets of information search can yield design recommendations for information systems and processes that are meaningfully customized to the situations and environments in which they are applied.

As more domains are researched using the same conceptual framework, more findings accumulate that can be compared, making it possible to identify trends in the kinds of domains and factors that give rise to different ways of conceptualizing, actualizing, and assessing the relevance of information objects. Instinctively, the connections between context and information seeking are apparent. Through a gradual accumulation of theoretically-grounded, empirical observations – and the ensuing discourse – they become manifest.

It might even be of use in libraries. But that's another story.

– *Vannevar Bush, 1945*

Appendix A

E-mail Announcement of MALACH Teachers' Workshop

Dear educators,

Please join the University of Maryland College of Information Studies for a week-long professional development workshop (August 7 - 11), where educators will work together to create and modify lesson plans that deal with the Holocaust.

Educators who participate in the workshop will be paid $100 per day for allowing the University of Maryland research team to observe and record their lesson-planning activities. In addition, the University will offer 3.7 continuing education units for successful completion of the workshop. Finally, lunch will be provided to participants every day.

Participants will have access to an archive of Holocaust survivors' videotaped oral histories. You will use the archive with our custom search system, which allows educators to design lesson plans while they retrieve, review, and evaluate passages of Holocaust survivor testimony.

We are currently accepting indications of interest from teachers, media specialists, curriculum coordinators, and other professionals who teach or support the teaching of the Holocaust. As a first step, applicants need only e-mail me indicating their interest (with cc to Katy Lawley: katythelawley@gmail.com). They may attach a resume or curriculum vita if one is easily available.

For more information, please visit:
http://www.wam.umd.edu/~katyn/WorkshopApplication/WorkshopAnnouncement.html

Also, you may contact the workshop organizers with any questions or to express your interest in joining the workshop:
Professor Dagobert Soergel
301-405-2037
dsoergel@umd.edu

Katy Lawley, PhD Candidate
katythelawley@gmail.com

Thank you for your help in sharing this announcement.

Sincerely,
Professor Dagobert Soergel,
College of Information Studies
University of Maryland dsoergel@umd.edu

Call for Applications
Holocaust and Tolerance Lesson-Design Workshop:
Incorporating Oral History Materials into Classroom Lessons
August 7-11, 2006
University of Maryland, College Park

College of Information Studies, in collaboration with USC Shoah foundation Institute for Visual History and Education

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Instructors:

Professor Dagobert Soergel,
> Specializing in information retrieval and user studies

Professor Ann Weeks,
> Specializing in school library media and services for children

Kimberly Birbrower,
> Director of Education, USC Shoah Foundation Institute for Visual History and Education

Lisa Armstrong,
> Regional Educator, United States Holocaust Memorial Museum;
> Holocaust Literature Teacher, Archdiocese of Kansas City, Kansas

Doug Ballman,
> Manager of Archival Access, USC Shoah Foundation Institute for Visual History and Education

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Brief Description

This is a five-day workshop in which educators will work in teams to develop lesson plans in tolerance and/or Holocaust education, using materials from the Visual History Archive of 52,000 videotaped interviews with Holocaust survivors, assembled by the Survivors of the Shoah Visual History Foundation. Participants will use a pilot search system developed specifically for educators, integrated in an environment for collaborative assessment of materials and lesson design.

Objectives

- Participants will learn general techniques of searching for materials to be used in the classroom, using the example of an oral

history archive.
- Participants will improve their skills in selecting appropriate materials for specific classroom purposes and student populations.
- Participants will improve their skills in collaborative lesson planning and teamwork.
- Participants will improve their understanding of issues in tolerance and Holocaust education.

Introduction and Workshop Purpose

MALACH, a research team from the University of Maryland, will host a five-day workshop where teams, consisting of teachers, media specialists, and curriculum specialists, will work together to use cutting-edge technologies with an unprecedented oral history resource archive to design and refine lesson plans for teaching the content of the Holocaust in meaningful and engaging ways. Lessons of the Holocaust can reach into many types of curricula, from history to language arts to tolerance to civics to art and music.

The Workshop will allow educators to work in teams in an intensive and invigorating environment. A team will consist of 2-4 people. For example, a team might include a media specialist, a curriculum supervisor, and a social studies teacher.

Workshop activities will revolve around collaborative lesson design and materials selection using the USC Shoah Foundation Institute's video archive of personal accounts from survivors and witnesses of the Holocaust. Participants will spend the week in intensive sessions where they will participate in activities such as:

- Discussing objectives for lessons and developing activities and assignments,
- Searching the Web for resources and materials,
- Searching the Shoah Foundation Institute's archive to find passages of Holocaust survivor testimony, using a custom computer system that incorporates several lesson-planning and lesson-sharing tasks.

These activities will interact through several iterations over the course of the week. In addition to working within their own teams, workshop participants will work with researchers from the University of Maryland and with an expert intermediary who will guide participants through the voluminous Shoah Foundation archive.

Workshop activities will also include using and evaluating new technologies for searching, viewing, and using oral history testimonies. The workshop will include formal and informal opportunities for educators from different schools to interact, including one or two after-hours dinner events. Activities are planned during which attendees may:

2 Discuss the relationship of tolerance and Holocaust topics to educational standards and existing curriculum elements;
3 Discuss goals, impressions, processes, and teaching techniques with teachers and researchers in the form of focus groups and interviews.

Workshop participants will be encouraged to take the products of the workshop into their classrooms and to share their work with colleagues.

Benefits and Compensation

Workshop attendees are expected to participate in a research study of the instructional design process (details of the research study are described in the Informed Consent Form, a Microsoft Word document). Each participant will receive a stipend of $100 per day.

Lunch will be provided for all participants each day.

Team Applications

Interested parties should apply as teams for the workshop. A team should consist of 2-4 people who would normally work together or would like to work together during the lesson design process. Team members may be teachers, school media specialists, coordinators, curriculum specialists, or any other professionals who partake in the design and development of instructional units. All members of one team should be from the same school or school system. We hope to see applicants from a variety of schools, backgrounds, and levels of experience. All team members must be involved in public schools.

Application Process and Deadline

We are currently accepting by e-mail statements of interest from teams of educators from Maryland and Virginia.

More information about the application process is available at:
www.wam.umd.edu/~katyn/WorkshopApplication.

Interested educators should inform us of their interest by July 1, 2006, for fullest consideration. All application materials are confidential.

Contact

For more information about the workshop or the application process, please contact:
Dagobert Soergel
College of Information Studies
University of Maryland
College Park, MD 20716
dsoergel@umd.edu
301-405-2037

Last updated: 21 April 2006.

Appendix C
Phase 1 Interview Protocol

The Phase I interview is semi-structured; follow-up questions may arise as teachers discuss unexpected topics that pertain to their perspectives on their work. The questions below describe the frame of the interview. When appropriate, the interviewer will ask for teachers to provide specific examples to illustrate broad statements and vague concepts.

How do you plan for the instruction that you deliver in the classroom?

What role do standards play in your instructional planning?

How often and in what way do you revise your lesson plans from previous years?

How do you get from the objectives and standards to the content and activities you bring to the classroom?

Some of the content you present comes from your own knowledge of the subject matter. You may write notes, discussion questions, or Power Point slides. But you might also supplement your original content with "outside" content – words, images, and concepts from other sources. What do you do when you want to find outside content to include in a lesson plan?
> What do you search for?
> What are some of the qualities that would make you accept or reject content?

For the different types of media you use, what is it about each that changes how your students connect with the material?

Tell me about your students.

In what ways do you work with other people within or beyond your school?
> Who do you work with?
> Is collaboration spontaneous or planned? Formal or informal?
> Are there any ways in which you would like to collaborate but haven't?
> Are there any ways in which the current level of collaboration is too much?

What are some of the characteristics about the physical environment in which you work? How do these characteristics affect your planning and teaching?
> Equipment and Facilities
> Layout / Floorplan

What else do you think I should know about your work? **Thank you!**

Observer Training Documents

Notes and Guidelines for the Observer

Things to know:
Please become familiar with the research summary and the code list. These documents will help you develop an ear for ***incidents, trends***, and ***characteristics*** that pertain to the study.

Only use the code list as a guiding document to help you remember the conceptual vocabulary and arrangement of the research study. You don't need to use the code list as an outline for writing down incidents, trends, and characteristics. Rather, use it to implant a series of "light bulbs" in your mind that will go off when something happens that fits into the code list. When that happens, make note of the *incident* in enough detail that you can relate what happened later in the observer meeting. Don't worry about describing what the incident *means,* just describe what happened.

Your notes will be used for three purposes:
- *Firsthand data for analysis.* During the data analysis phase of my dissertation, I'll use the codes in the code list to bookmark events and conversations. After all the data is coded in this way, I'll use a census of the data coded at each concept to get an understanding of how that concept applied throughout all the data.
- *Critical incidents for interviews & plenary.* You will be directly observing teachers' behaviors during searching and lesson planning. Any time you see an event happen that is significant, you will make note of that event and describe it in more detail later when you meet with Katy (lunch or end of day).
- *Design suggestions.* While most of the topics of discussion in the team rooms can be transcribed later for analysis, we want to look now at design recommendations from teachers. Since our developer is available now, we can meet with him each day to show him problems, ideas, and interesting uses of the system.

Critical Incident Technique: What it is and how it will be used
Critical incident technique (Flanagan, 1954) is being used to identify salient events and processes that teachers experience during the workshop. The general technique for critical incidents is to ask the speaker to identify events that were especially helpful or hindering, to describe what led up to the event, then to describe how the event affected the person. Critical incidents will be identified by teachers (self-perceived) and by workshop observers (observer-perceived). Observer-perceived incidents that are not mentioned by the participant as a self-perceived critical incident will be included as an interview topic.

During the Session:
Taking Field Notes

- Write down keywords about critical incidents. You'll have a chance to explain the incident to Katy during observer meetings at lunch and at 5 pm every day, so just write down enough information to jog your memory.
- Write down system design problems and suggestions. Write down comments teachers make about the system (even "little" things, like color, labels, or layout):
  - things they don't like,
  - things that could be improved,
  - things they wish they could do,
  - things they can do in the system but can't find.
    Of course, anything that doesn't work or that significantly impedes teachers' work should be brought to Tandeep's or Katy's attention immediately.
- Use time codes. Even if some conversation is not a critical event, please note the time whenever someone says something. This will keep our transcriber from having to listen to three hours of dead air to transcribe five minutes of dialog.
- So that we can read through your notes quickly, please find a way to identify which notes are critical incidents and which are design suggestions (other kinds of notes don't need to stand out). Please use a different font, asterisks, underlines, arrows, or whatever other kinds of markers you want to point bring different readers' eyes to the information they need.
- Make sure that *each page* has the date, session time, and team name.
- Call for help! Use your list of phone numbers to find help whenever you or the teachers need it.

After the session
Your notes need to get to Deborah for copying. There's a box on the work table in the conference room with Deborah's name on the front. Please paper clip your notes from one session (if there are multiple pages), and put a sticky flag (next to the box) on any pages that have design suggestions.

Dissertation Study Summary

This document will help you, the observer, to understand the reason for the study and the major concepts being investigated.

Abstract
This study will explore the role of information in content selection for instructional planning. The vocabulary for understanding this process will be drawn from three theories that deal with different aspects of the study phenomena:
5. Wilson's model of **information behavior** (Wilson, 1981, 1997);
6. The ASSURE model of **instructional planning** (Smaldino et al., 2005);
7. **Work analysis** categories (Vicente, 1999).

The context of the study is the MALACH teacher workshop, where eight local teachers will spend one week interacting with the MALACH collection using an interface that was custom-designed to integrate planning lessons with searching the archive. As an observer, your role will be to identify listen and watch for the three theoretical concepts throughout teachers' work at the workshop. This document will describe each concept to you in more depth so that you will become able to recognize and record *incidents*, *trends,* and *characteristics* that pertain to the study's ultimate question: *What is the role of information behavior in content selection for instructional planning?*

Introduction
What is this all about, anyway?
The field of library and information science (LIS) is concerned with the study of information and information behavior. From systems for document classification to theories of relevance to user studies, LIS theory, research, and practice explore and facilitate relationships between people and information. A user of information is a person embedded in a context. To effectively describe information's role in helping the user, one must understand characteristics of the person, the situation, the available information, and the information system. All of these elements may interact with each other in complex ways, depending on the characteristics of each.

Instructional planning is the process by which teachers plan instruction for delivery in the classroom (Reiser & Dick, 1996). Instructional planning is "the process of analyzing needs, determining what content must be mastered, establishing educational goals, designing materials to help reach the objectives, and trying out and revising the program according to learner achievement" (Heinich et al., 2002, p. 362). The proposed study will emphasize a specific sub-task of instructional planning, which will be called instructional *content selection*. A step in the instructional planning process, content selection involves pursuing instructional objectives "by choosing appropriate methods, technology, and media formats, then deciding on materials to implement these choices" (Heinich et al., 2002, p. 54). Content selection has been described as a case of information seeking (Lawley et al., 2005). Characteristics of content selection may be driven by some combination of the work-task situation, the information task, the person, and other factors.

Why do a library and information science (LIS) study about instructional planning?
Teaching has always been an information-rich profession, and the proliferation of digital libraries and other educationally-oriented resources for teachers and students has inspired the design, implementation, and analysis of information tools, systems, and processes to support various instructional tasks (Brown & Bowers, 2006; Davis et al., 2006; Khan & Maull, 2006; Recker & Palmer, 2006; Semple et al., 2000; Sutton et al., 1998; Marchionini et al., 1997; Marchionini & Maurer, 1995). Using LIS concepts to explore the instructional planning process will guide better understanding of the role information plays in the work of teachers. Descriptions of instructional

work like this one can coalesce to equip developers with a robust understanding of the nature of educators' information needs and behaviors.

Conceptual Framework
In a qualitative research study, the researcher defines a conceptual framework before going into the field to collect data. The conceptual framework uses theories and models from the literature to define the concepts and boundaries of the phenomenon being studied. For example, with this study, it would not be very rigorous or useful to ask the research question (What is the role of information behavior in instructional planning?) and then to begin asking interview questions and taking field notes based only on that question. Instead, we have to go deeper. We have to specify exactly what is meant by *information behavior* and *instructional planning*. Even if these are concepts that we feel like we understand in our own minds, we need to make sure that we have a framework that will allow us to systematically analyze and compare the observations that we make in the field.

The idea for the conceptual framework is to describe the aspects of the study phenomena that we will look for during observation. As an observer, knowing the conceptual framework will help you focus your mind and your senses on collecting incidents, trends, and characteristics that pertain to the study, rather than trying to write down everything (which, of course, would be impossible and frustrating). As described in the abstract, the conceptual framework for this study joins three theoretical concepts, information behavior, information planning, and work analysis. Each of these is described below.

Information Behavior
Information needs, information seeking, and information use have been explored and described in many different aspects and from many different perspectives (e.g., Kuhlthau, 1991; Bates, 1989; Dervin & Dewdney, 1986). The LIS model most appropriate for the proposed study is Wilson's model of information behavior (Wilson, 1981; 1997). The model illustrates how three broad elements interrelate: information needs, information seeking behavior, and variables that intervene in the expression of information needs as information seeking behavior. See Figure 1 for the concepts and relationships you should understand about information behavior.
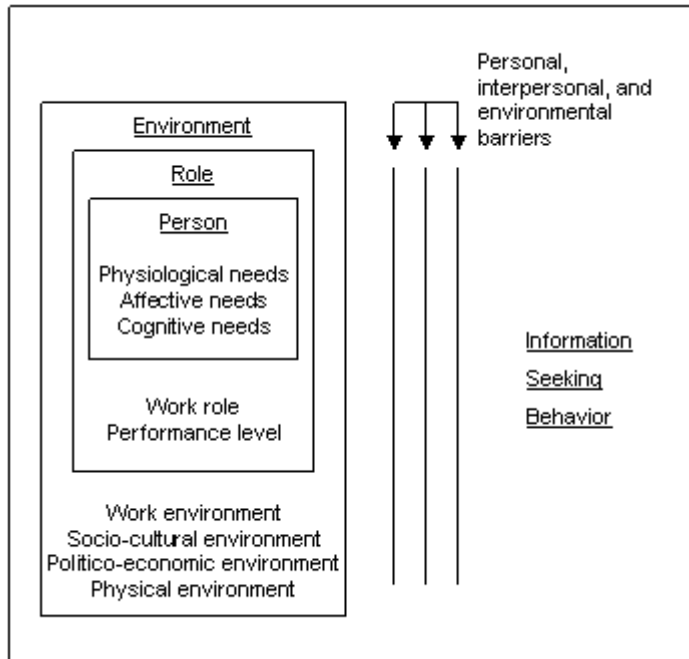
Figure 10. Wilson's Model of Information Behavior

Wilson's model illustrates how three broad elements interrelate: information needs, information seeking behavior, and variables that intervene in the expression of information needs as information seeking behavior. Information needs, as described in the model, involve a *person* with a *role* embedded in a particular *environment*. The environment influences the person and the nature of the person's role. The role influences the person, who – under this influence – performs information-related behaviors, which are influenced by intervening variables. Hence, aspects of information needs and the performance of information tasks are influenced by characteristics of the environment, the role within that environment, and the person who plays the role. A goal of the proposed study will be to describe the information behaviors during content selection by *people* who work as *teachers* (role) in their *schools* (environment). During the workshop, we will be looking for the following aspects of information behavior:

- Characteristics of the *person*;
- Characteristics of the person's *role*;
- Characteristics of the person's *environment*;
- *Information seeking behaviors*;
- *Intervening variables.*

Your code list gives you more detail about how to identify these concepts during observation.

Instructional Planning
Instructional planning, as described above, is the process by which teachers identify learning objectives and plan activities, media content, and assessments to help students achieve these objectives. Introduced in 1982, the ASSURE model (Heinich,

1982; Smaldino et al., 2005) describes procedures for planning and implementing instruction, including the selection of materials and media.

Table 3. Steps in the ASSURE model

	Analyze learners	Identify the audience of instruction and the characteristics of that audience that pertain to learning (e.g., demographics, competencies, learning styles).
	State objectives	List the learning objectives, including any educational standards that might be relevant. Include a statement of the expected performance standards for successful attainment of each objective.
	<u>**S**elect methods, media, and materials</u>	**Find instructional methods and technologies that will build a bridge from audience analysis to instructional objectives. Selecting content may involve any of three alternatives: 1) Use existing materials, 2) Modify existing materials, or 3) Create new materials.**
	Utilize media and materials	Plan implementation of selected methods and materials that will optimize progression toward learning objectives.
	Require learner participation	Include activities that will engage students with material and concepts as actively as possible so that they may practice new knowledge and receive feedback on their learning.
	Evaluate and revise	Evaluate the effectiveness of instruction and revise accordingly.

The ASSURE model is useful for this study because it describes the whole process of instructional planning, including a specific stage for content selection. During analysis, the ASSURE model will allow the description of content selection as part one step on a larger process. As an observer, you will be looking for incidents, trends, and characteristics that pertain to all stages of the ASSURE model.

Work Analysis
Most broadly, this study is an analysis of how a certain group of people (teachers) use information during their work. In order to understand information behaviors from this level, a framework called cognitive work analysis (CWA) will provide a broad structure within which to understand and analyze events, trends, and characteristics that pertain to information behavior during instructional planning.

CWA provides a framework that describes aspects of work according to the goals and constraints of the worker. This description is in contrast to a task analysis, which describes work according to the individual steps that are taken to reach a goal. If you understand the difference between a roadmap and turn-by-turn directions, that's the difference between the kinds of descriptions provided by CWA and task analysis. The benefit of using work analysis over task analysis is that teachers have highly individualistic working styles. Some are heavy planners, some are spontaneous. Some adhere strictly to standards and planning guides, while others follow them loosely. Some make heavy use of media and group activities, others prefer to emphasize traditional lecture. Because of all of these differences, it makes more sense to describe the *context* within which teachers make decisions and use information. Work analysis can structure observation and analysis of information behaviors and instructional planning tasks by placing task analysis within a broader work context. This work context is structured according to the five constructs described in Figure 2.
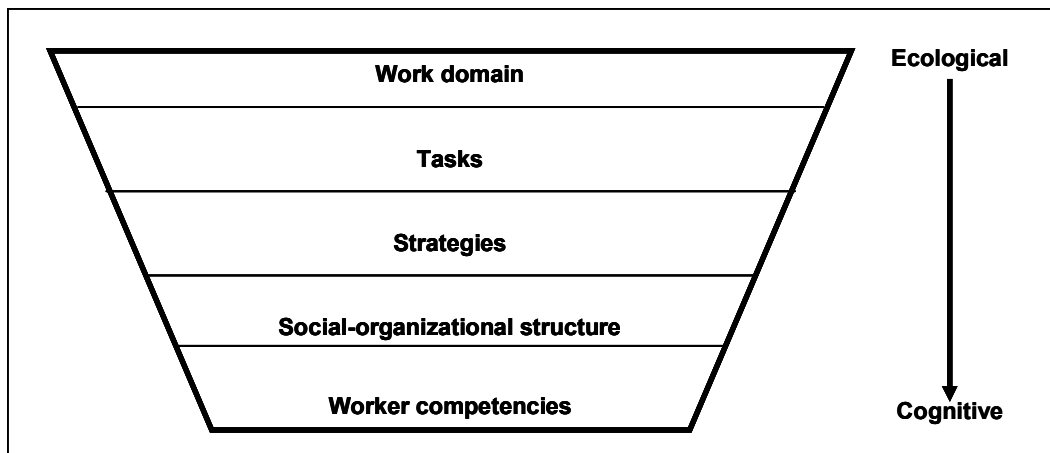
Figure 11. Ecological-to-Cognitive Hierarchy of Work Analysis (Vicente, 1999)

Within the *work domain*, *tasks* are performed using *strategies*, which are influenced by the *social and organizational structure* of the work domain. At the cognitive level, *worker competencies* are the skills and abilities a person needs in order to successfully perform work tasks in a particular work domain. All five of these constructs pertain to aspects of ASSURE and Wilson's model, allowing for observed events and characteristics to be understood in terms of information behavior, instructional planning, and work.

Summary
You should now have a general idea of how this research study will use the concepts of *information behavior, instructional planning, and work analysis* to describe teachers' use of information during content selection for instructional planning. Each of the theories behind the study's concept provides the vocabulary used in your code list. Additionally, the code list includes more detailed information seeking behaviors and information needs based on data that we collected from teachers in 2003.

Appendix E
Workshop Schedule

Monday	
9 – 9:30	**General introduction and orientation** *[Conference room]*
9:30 – 10:45	**Introduction to Shoah Foundation [*Conference room]* Video presentation** The Shoah Foundation is the organization responsible for the collection of 52,000 oral history testimonies from Holocaust survivors. During this session you will learn more about the Foundation, its outstanding efforts and accomplishments, and the nature of the archive to which you will have special access to throughout the week.
10:45 – 11:00	**Break**
11:00 – 11:30	**Introduction to Using the VHF Thesaurus** *[Conference Room]* Because the Shoah Foundation's archive is so large, they have created a thesaurus of terms to guide and assist searchers. The Thesaurus is thematically and topically arranged and shows a list of the terms and topics that have been assigned by catalogers to the oral histories in the archive. While ultimately very useful, using this kind of thesaurus can take some getting used to. During this session you will learn how the VHF Thesaurus can help you find what you need.
11:30 – Noon	**Team-Building for Collaboration** *[Conference Room]* Teachers will get to know each other and how to optimize the opportunity to collaborate within and beyond their teams during the workshop.
12:00 – 1:00	**Lunch** *[Conference Room]*
1:00 – 3:00	**Hands-on practice** *[Team Rooms]* Teachers will work in teams to try out the workshop software and the VHF Thesaurus. Instructors will be circulating throughout this session to answer questions.
3:00 – 4:00	**Using Visual History in the Classroom** *[Conference Room]* **Part I** The USC Shoah Foundation Institute works to develop programs that can support teachers as they strive to address the difficult issues

of intolerance and bias in their classrooms. This session is designed to guide educators through the various ways in which visual history testimony can be incorporated into lessons and classroom activities.

4:00 – 4:15   **Break**

4:15 – 5:00   **Plenary** *[Conference Room]*
The plenary session will be a capstone to each day. During this session, teachers will share their impressions, discuss teaching ideas, ask questions of each other or the instructors, reflect on the content of the archive, and provide feedback and suggestions to workshop staff.
Free write
Following the plenary discussion, each teacher will write for ten minutes to capture his or her own impressions, goals, and ideas.

Tuesday

9 – 10:15   **Guidelines for Teaching the Holocaust** *[Conference Room]*
This session will illustrate the United States Holocaust Memorial Museum's Guidelines for Teaching the Holocaust, with specific emphasis on incorporating survivor testimony in lesson plans.

10:15 – 10:30   **Break**

10:30 – 11:00   **Introduction to VHA** *[Conference Room]*
While the workshop system provides access to over 1,000 Holocaust survivor testimonies, the full version of the Shoah Foundation's Archive contains tens of thousands more. Teachers will get an exclusive introduction to the Shoah Foundation's own system for searching this outstanding archive.

11:00 – Noon   **Using Visual History in the Classroom** *[Conference Room]*
Part II
The USC Shoah Foundation Institute works to develop programs that can
support teachers as they strive to address the difficult issues of intolerance and bias in their classrooms. This session is designed to guide educators through the various ways in which visual history testimony can be incorporated into lessons and classroom activities.

Noon – 12:30	**Video presentation** *[Conference Room]*
12:30 – 1:30	**Lunch** *[Conference Room]*
1:30 – 4:00	**Teams work** *[Team Rooms]* Each team will go to its own private workroom, where team members may work on lesson plans, search the archive, and share ideas and results. Workshop staff will be available in each room to help, as needed.
4:15 – 5:00	**Plenary** *[Conference Room]* All teachers will reconvene for the daily group discussion **Free write**

Wednesday	
9:00 – 11:00	**Teams work** *[Team Rooms]*
11:00 – 11:15	**Break**
11:15 – 12:30	**Teams Work / ASR Experiment** *[Team Rooms]* Teachers use ASR-only version of system to continue their searches. **Focus Group** Teachers will discuss with a mediator their impressions of the ASR-only system.
12:30 – 1:30	**Lunch** *[Conference Room]*
1:30 – 4:00	**Teams work** *[Team Rooms]* **Interviews** *[See Team Schedule]*
4:00 – 4:15	**Break**
4:15 – 5:00	**Plenary** *[Conference Room]* **Free write**

Thursday	
9:00 – 9:30	**Collaborating with the School Media Specialist** *[Conf. Room]* Teachers will learn how the school media specialist can provide meaningful support throughout planning, teaching, and revising.

9:30 – 12:30	**Teams work** *[Team Rooms]* **Interviews** *[See Team Schedule]* **Searching VHA** *[See Team Schedule]* One at a time, teams will consult with Doug Ballman for 45 minutes on uses and techniques for searching the Shoah Foundation's VHA system.
12:30 – 1:30	**Lunch** *[Conference Room]*
1:30 – 4:00	**Teams work** *[Team Rooms]* **Interviews** *[See Team Schedule]* **Searching VHA** *[See Team Schedule]*
4:15 – 5:00	**Plenary** *[Conference Room]* **Free write**

Friday	
9:00 – 10:15	**Teams Work** *[Team Rooms]*
10:30 – 12:30	**Presentations** *[Conference Room]* Teams and teachers will prepare a short presentation (10-15 minutes per person), to discuss the ideas and products they have generated or refined during the workshop. Visual aids (such as Power Point) and other media are welcome but not required.
12:30 – 1:30	**Lunch**
1:30 – 3:00	**Teams work** *[Team Rooms]* **Interviews** *[See Team Schedule]*
3:00 – 3:15	**Break**
3:15 – 4:00	**Planning for Collaboration** *[Team Rooms]*
4:00 – 5:00	**Plenary** *[Conference Room]*

Appendix F
Phase 2 Interview Protocol
Interviews 1 & 2

Critical incident technique (Flanagan, 1954) will be used to identify salient events and processes that teachers experience during the workshop. Critical incidents will be identified by teachers (self-perceived) and by workshop observers (observer-perceived). Observer-perceived critical incidents will be selected by the researcher from the following data:

- Direct observation,
- Observer notes,
- Free writes.

The researcher will use these incidents to provide each interviewer with customized protocols for each interview session. Since interview sessions took place during the afternoon, interview protocols were provided to and discussed with interviewers during the lunch break.

Thursday Interview with Teacher X

Activate voice recorder!

Critical Incidents: Self-Perceived
Positive events:
Tell me about something especially satisfying that happened in the last day or two.

Tell me how it came about and why it comes to mind or stands out for you.
     *Possible prompts (**after** speaker has listed some spontaneously or given non-response):*

- *a testimony you've seen,*
- *an instructional idea,*
- *a search or search topic.*

Negative events:
Now tell me about something especially frustrating that happened in the last day or two. Tell me how it came about and why it comes to mind or stands out for you.
*Possible prompts (**after** speaker has listed some spontaneously or given non-response):*

Check that voice recorder is still working.

Critical Incidents: Observer-Perceived
I read in your free write that you learned more about the history of anti-Semitism yesterday. What does that do for how you approach the Holocaust in your workshop lessons and your teaching in general?

Yesterday, you mentioned a certain testimony passage during the plenary session. Tell me about this really moving piece you watched and what it means to you.

****

Have you started any new lesson plans since yesterday's interview? Or have you refined the ones you started?
Tell me what your workflow has been like since yesterday.

Let's take a look at a lesson plan here. Tell me, as you were working on this lesson plan, what kinds of searches did you do? How did you make decisions about useful clips to include in the lesson?

Just like we did yesterday, I want to show you a list of the searches you've been doing. Please take a moment to look it over, and talk me through what you were looking for.
Possible prompts to jog discussion:
What did you think you might get by entering this search?
Were you happy with the results you got?
What did you like or dislike?
How would you describe search results that would be perfect for your needs in this search?
What, if anything, do these searches have to do with the lesson plan you're working on?

Have you thought about other kinds of content you would like to incorporate into your lessons?

Have there been any cases where a segment gave you a brand new idea for a lesson plan or module? Tell me about that.

What about the reverse: Have there been any cases where you knew what kind of lesson you wanted, and then searched accordingly? Tell me about that.

Have you worked with any of your team mates on your searches or lesson plans?

***What do you plan to do tomorrow?

Tell me what you think of the system you've been using.
Possible prompts:
Is it hard to use?
Can you think of any improvements?

Would you like to tell me about anything else?

Thank you!

Appendix G
Phase 2 Interview Protocol: Exit Interview

Interview Protocol 2:
Exit Interview

Activate voice recorder!

In the previous interviews, we've asked you to tell us about satisfying or frustrating things that have come up during the workshop. Has anything happened that you think we should hear about but haven't?
> *What led up to this situation?*
> *What impact did this have on your work here at the workshop?*

How would you describe the lesson plans you've created this week?

Choose one of the lessons or activities you've created and tell me about how it came do be. Describe the events in sequence.
> Where did the ideas come from?
> Did you plan to work on something like this before you came?

Check that voice recorder is still working.

How would you describe the searching and selection of Holocaust survivor testimonies you've done this week?

What was your team experience like?
> *What aspects of the team work did you like?*
> *What aspects of the team work didn't work out?*

You'll be leaving the workshop with some materials. You'll have the lesson plans you've begun, the notes you've taken, and we'll be sending you a DVD of the testimonies or segments you've selected. Tell me your plans for revising or using these materials during the coming school year?

Do you have any plans to share the workshop skills, concepts, or materials within or beyond your school? Describe.

List two or three ideas, skills, or techniques that you gained this week, and give me some sense of how valuable these were for you.

We would like to use your experience to improve the workshop system. Do you have any final thoughts, insights, or suggestions about the system?

Thank you!

Appendix H
Phase 2 Free Write Prompt

Free Write: 10 minutes

Reflect on what you learned, what was most important, what was most interesting, what was extraneous.

Ask questions about what you feel a need to know, whether about your lesson plans, the search system, the Holocaust, or the workshop.

Offer ***critique and suggestions.***

Say anything else you want to.

Appendix I
Preliminary Coding Scheme

Context
  Environment
    Work domain
    Organizational structure
      Socio-cultural environment
        Interpersonal environment
        Collaboration
      Politico-econ. environment
    Physical environment
  Role
    Work role
      Subject taught
      Performance level
  Person
    Competencies
    Strategies
    Cognitive needs
    Affective needs
    Amt of teaching experience
  Lesson planning
    Identify topic
    Analyze learners
    State objectives
    Select media, materials
      Choose a media format
      Obtain specific materials
      Modify existing materials
      Design new materials
    Utilize media and materials
    Require learner participation
    Evaluate and revise
  Information source characteristics
Information behavior
  Understand
  Select search system
  Map task to system
  Formulate query & execute search
  Evaluate & use
  Examine
  Extract

Learn
  About topic
  About system
Select
Reject
Segment relevance appraisal
Relevance criteria
  Relevant to teaching content & method
    Relationship to theme
    Fits into broader curriculum
      Relates to other schoolwork
      Variety for the classroom
      Vocabulary
    Characteristics of the story
      Positive message for students
      Role of interviewee in Holocaust events
      Relationship of story to student
        Students connect with passage
        Students identify with interviewee
        Radical difference from students' reality
    Represents different populations
      Race
      Age of interviewee at time of described events
    Characteristics of oral history interviews
      Expressive power
      Language and verbal expression
      Nonverbal communication
      Diction
      Flow of interview
  Appropriateness
    Developmental appropriateness
    Acceptability to stakeholders
  Length-to-contribution ratio
  Technical production quality

Appendix J
Teacher-by-Teacher Chronology of Segment Selections

* = duplicate
** = not in any lesson plan (probably removed)
+ = selected (in transaction log) and in Shoah segment summaries but not in
"Segments Used" list

Alan

42340	Wednesday	10:24:59	Resistance during the H.	resistance, spiritual
86768**	Wednesday	10:33:00		resistance, spiritual
143731**	Wednesday	10:38:27		resistance, spiritual
136429	Wednesday	10:55:08	Resistance during the H.	resistance, spiritual
121687	Wednesday	10:59:44	Resistance during the H.	resistance, spiritual
124624	Wednesday	11:12:17	Resistance during the H.	protest
164535**	Wednesday	12:12:07		children in resistance groups
104128**	Thursday	11:40:29		SID
57843	Thursday	11:48:55	Resistance during the H.	SID
29227	Thursday	11:49:24	Resistance during the H.	SID
74794	Thursday	12:00:16	Resistance during the H.	SID
85073	Thursday	16:01:58	Message to the Future	"message to the future" AND "action"
110354	Thursday	16:20:01	Message to the Future	"message to the future" AND "tolerance"
58262	Friday	14:33:42	Resistance during the H.	SID
74794* (dup)	_Friday_	_14:35:04_	_Resistance during the H._	_SID_
99607	Friday	14:36:01	Resistance during the H.	SID
_57843*_	_Friday_	_14:45:33_	_Resistance during the H._	_SID_
97323	Friday	14:53:26	Resistance	SID

			during the H.	
108455	Friday	14:59:07	Resistance during the H.	SID
61006	Friday	15:02:17	Resistance during the H.	SID
141624	Friday	15:05:59	Resistance during the H.	SID
163693	Friday	15:10:29	Resistance during the H.	SID
187365	Friday	15:53:38	Message to the Future	"message to the future"
201447	Friday	15:54:22	Message to the Future	"message to the future"
34520	Friday	15:54:28	Message to the Future	"message to the future"
54448	Friday	15:54:36	Message to the Future	"message to the future"
55477	Friday	15:54:59	Message to the Future	"message to the future"
94979	Friday	15:55:12	Message to the Future	"message to the future"
105453	Friday	15:55:44	Message to the Future	"message to the future"
38869	Friday	15:56:14	Message to the Future	"message to the future"
23108	Friday	15:56:32	Message to the Future	"message to the future"
167679	Friday	15:56:41	Message to the Future	"message to the future"
97033	Friday	15:57:36	Message to the Future	"message to the future"
23108*	*Friday*	*15:57:46*		*"message to the future"*

Carl

115896	Monday	14:07:32	Pogroms Before 1933	pogrom – kristallnacht – november
79032	Monday	14:50:09	Pogroms Before 1933	SID
207714	Tuesday	15:18:36	Kristallnacht	kristallnacht
72834	Tuesday	15:35:14	Kristallnacht	kristallnacht
78950	Tuesday	15:45:11	Kristallnacht	kristallnact
114459	Tuesday	16:00:03	Nuremburg	Nuremburg

			Laws	laws
7016	Wednesday	9:15:49	Nuremburg Laws	Nuremburg laws
7016	Wednesday	9:16:25	Kristallnacht	Nuremburg laws
69871	Wednesday	9:30:28	Nuremburg Laws	Nuremburg laws
139035	Wednesday	9:50:03	Groups in the Holocaust	jehovah's
26652	Wednesday	10:59:34	Groups in the Holocaust	gypsy
68686	Wednesday	11:00:14	Groups in the Holocaust	Kxxx homosexual
3909	Wednesday	11:04:32	Groups in the Holocaust	roma
86177	Wednesday	11:14:35	Groups in the Holocaust	communist prisoners
8107	Wednesday	14:37:06		SID
75049	Wednesday	14:41:21	Groups in the Holocaust	SID
194471	Wednesday	15:08:09	Life in the Camps	work camp
19127	Wednesday	15:17:52	Life in the Camps	work camp
65664	Wednesday	15:30:26	Life in the Camps	work camp
97727	Wednesday	15:40:17	Life in the Camps	factory camp
116963	Thursday	10:23:00	Life in the Camps	Axxx Sxxx Treblinka
116969	Thursday	10:29:50	Life in the Camps	Axxx Sxxx Treblinka
104073	Thursday	10:43:00	Life in the Camps	Auschwitz
94139	Thursday	11:07:31	Life in the Camps	sobibor uprising
58262	Thursday	11:18:08	Life in the Camps	SID
78352	Thursday	14:14:14	Nuremburg trials	trials
208306	Thursday	15:10:09	Nuremburg Laws	Nuremberg laws
22859	Thursday	15:14:39	Nuremburg trials	Nuremberg trials
65202	Thursday	15:21:18	Life in the Camps	Wolff-Zdzienicki lamp

				shade
109605	Thursday	15:31:09	Nuremburg Trials	trials
73481	Thursday	15:42:19	Nuremburg Trials	trials
202290	Friday	10:42:06		Chambon
202550	Friday	13:57:15		chambon

Cory

192860	Tuesday	15:24:10	Cultural Dissonance	segregation
108766	Tuesday	16:04:56	Cultural Dissonance	racial and ethnic discrimination
106664**	*Tuesday*	*16:19:11*		*racial and ethnic discrimination*
131092	Wednesday	11:15:12	Cultural Dissonance	Lxxx Pxxx
78314	Wednesday	15:22:40	Mind Control	Propaganda
41004	Thursday	11:52:06	Mind Control	Propaganda
26547	Thursday	11:55:46	Mind Control	Propaganda
88169	Thursday	14:23:26	Cloning	Joseph Mengele, experiments
133387	Thursday	14:29:16	Cloning	Joseph Mengele, experiments
9195	Thursday	16:19:26	Cloning	Joseph Mengele, experiments
88169*	*Friday*	*10:45:54*		*Joseph Mengele Experiments*

Jimmy

101783	Tuesday	15:32:23	Guided Reading	U.S. Soldiers
157056	Tuesday	15:43:30		Holocaust denial
101783*	*Wednesday*	*9:11:04*		*SID*
212278	Wednesday	10:36:39	10 Things	Hxxx Rxxx harmonica
212689	Wednesday	10:44:13	10 Things	Hxxx Rxxx harmonica
96927	Wednesday	14:38:17	10 Things	attitudes towards

				Americans
131148	Wednesday	14:45:10	10 things	homosexuals
63916	Wednesday		10 Things	attitudes towards Americans
73594	Wednesday	14:54:27		history of anti-Semitism
143160	Wednesday	15:02:15	10 Things	history of anti-Semitism
107220	Wednesday	15:30:52	10 Things	different types of camps
97733	Wednesday	15:40:34	10 Things	conditions displaced persons camps
94700	Wednesday	15:47:09	10 Things	creation of Israel
63152	Wednesday	15:56:44	10 Things	creation of Israel
131626	Wednesday	16:04:16	10 Things	Holocaust denial reaction
37651	Thursday	10:44:01	10 Things	Warsaw ghetto uprising
33828	Thursday	10:45:07	10 Things	Warsaw ghetto uprising
58262	Thursday	10:53:13	10 Things	Treblinka sabotage gas chambers
73978	Thursday	11:38:33	U.S. Foreign Policy	attitudes towards Russian liberators
127895	Thursday	15:05:08	U.S. Foreign Policy+	cannibalism
106711	Thursday	15:13:27	U.S. Foreign Policy+	cannibalism
113879	Thursday	15:20:45	U.S. Foreign Policy+	cannibalism
68540	Thursday	15:26:09	U.S. Foreign Policy	catholic priests
163184	Thursday	15:35:04	U.S. Foreign Policy+	catholic priests prisoners
141343	Thursday	15:40:38	U.S. Foreign Policy+	experiments
116970	Thursday	15:45:47	U.S. Foreign Policy	experiments
166528	Thursday	15:53:04	U.S. Foreign	experiments

			Policy	
133387	Thursday	15:55:19	U.S. Foreign Policy+	experiments
133518	Thursday	15:55:30	U.S. Foreign Policy	experiments
68686	Thursday	16:00:30	U.S. Foreign Policy+	homosexual
126164	Thursday	16:03:01	U.S. Foreign Policy+	homosexual

Lily

152847	Monday	14:08:08	Voices in History	family relationships
181656	Monday	14:14:32	Voices in History	family relationships
125941	Monday	14:19:50	Voices in History	family relationships
117360	Monday	14:26:06	Voices in History	family relationships
63874	Monday	14:38:30	Voices in History	family relationships
175900	Monday	14:50:06	Voices in History	family relationships
48252	Monday	14:50:48	Voices in History	family relationships
53045	Monday	14:53:29	Voices in History	family relationships
178641	Tuesday	14:47:51	Voices in History	school
41701	Wednesday	9:37:42	Voices in History	jewish gentile relationships
163363	Wednesday	9:42:53	Voices in History	jewish gentile relationships
81745	Wednesday	9:43:58	Voices in History	jewish gentile relationships
42895	Wednesday	9:47:03	Voices in History	jewish gentile relationships
21163	Wednesday	9:53:00	Voices in History	jewish gentile relationships
60333	Wednesday	9:59:37	Voices in History	jewish gentile relationships
41618	Wednesday	10:03:50	Voices in History	Jewish Gentile Relationships
53399	Wednesday	10:05:32	Voices in History	Jewish Gentile Relationships
138517	Wednesday	10:06:58	Voices in	Jewish Gentile

			History	Relationships
145726	Wednesday	10:14:39	Voices in History	Jewish Gentile Relationships
111197	Wednesday	10:21:24	Voices in History	Activities
205954	Wednesday	10:23:16	Voices in History	Activities
207280	Wednesday	10:35:22	Voices in History	Movie Theaters
92816	Wednesday	11:08:00	Voices in History	theater
17429	Wednesday	11:13:22	Voices in History	the arts
17660	Wednesday	13:53:54	Chelmno	chelmno
142107	Wednesday	14:08:16	Chelmno	chelmno
133313	Wednesday	14:12:34	Chelmno	chelmno
17494	Wednesday	14:20:50	Chelmno	chelmno
83359	Wednesday	14:32:33	Ravensbrueck	Ravensbrueck
160016	Wednesday	14:35:17	Ravensbrueck	Ravensbrueck
141158	Wednesday	15:21:21	Ravensbrueck	Ravensbrueck
180688	Wednesday	15:22:58	Ravensbrueck	Ravensbrueck
180736	Wednesday	15:23:22	Ravensbrueck	Ravensbrueck
83293	Wednesday	15:28:05	Ravensbrueck	Ravensbrueck
63038	Wednesday	15:37:18	Ravensbrueck	Ravensbrueck
117376	Wednesday	15:41:42	Drancy	Compiegne Drancy
180441	Wednesday	15:50:22	Westerbork	Westerbork
180658	Wednesday	15:51:23	Westerbork	Westerbork
183887	Wednesday	15:53:08	Westerbork	Westerbork
175346	Wednesday	15:55:42	Westerbork	Westerbork
113047	Wednesday	15:58:05	Westerbork	Westerbork
180623	Wednesday	15:58:50	Westerbork	Westerbork
57882	Wednesday	16:00:18	Westerbork	Westerbork
205774	Wednesday	16:01:46	Westerbork	Westerbork
115280	Wednesday	16:02:23	Westerbork	Westerbork
51991	Wednesday	16:08:10	Kaiserwald	Kaiserwald
71407	Wednesday	16:16:50	Kaiserwald	Kaiswerwald
154730	Thursday	10:22:11	Kaiserwald	Kaiserwald
177418	Thursday	12:29:07	Voices in History	cultural and social activities
74474	Thursday	14:52:41	Plaszow	plaszow
55717	Thursday	14:57:48	Plaszow	Plaszow
117982	Thursday	15:02:56	Plaszow	Plaszow
74430	Thursday	15:06:35	Plaszow	Plaszow
79245	Thursday	15:11:12	Plaszow	Plaszow

35690	Friday	14:54:31	Voices in History	discrimination
160576	Friday	14:57:22	Voices in History	discrimination
100208	Friday	15:13:16	Voices in History	discrimination
65451	Friday	15:37:31	Voices in History	discrimination
102618	Friday	15:51:06	Voices in History	discrimination
111206	Friday	15:53:27	Voices in History	discrimination
100524	Friday	15:56:41	Voices in History	anti-semitism before the war
58372	Friday	16:00:00	Propaganda	anti-semitism before the war
78314	Friday	16:01:18	Propaganda	Propaganda
38082	Friday	16:02:05	Propaganda	Propaganda
178964	Friday	16:02:42	Propaganda	Propaganda

Mary

12689	Monday	14:45:20	Music & Writing	Hxxx Rxxx playing harmonica
52466	Tuesday	14:13:39	Book Burning	Burning Books
94633	Tuesday	15:36:13	Incorporating Lit	library reading
193182	Tuesday	15:39:34	Propaganda	library reading
206299	Tuesday	15:50:29		library reading
73899	Wednesday	10:48:21	Pyramid of Hate	propoganda
131313	Wednesday	11:48:15	Book Burning	Higher Education
52466*	*Wednesday*	*11:53:26*		*Burning of Books*
143692	Wednesday	15:28:06	Signs & Symbols	Intelligencia
132840	Wednesday	15:35:40	Book Burning	Education in the Ghetto
20387	Wednesday	15:52:35	Pyramid of Hate	The Intelligensia
143692*	*Thursday*	*10:48:28*		*SID*
94633*	*Thursday*	*10:51:51*		*SID*
20387*	*Thursday*	*10:56:17*		*SID*
116835	Thursday	10:56:54	Pyramid of Hate	Hxxx Axxx
114655	Thursday	10:58:07	Pyramid of Hate	Hxxx Sxx
39330	Thursday	11:03:57	Propaganda	Signs and Symbols
79771	Thursday	11:10:04	Propaganda	Signs and Symbols
183071	Thursday	12:31:52	Propaganda	Propoganda
116033	Thursday	16:08:31	Propaganda	"Hxxx Axxx"
198283	Friday	14:09:03	Propaganda	Shoes
80595	Friday	15:36:04	Propaganda	Shoes
141611	Friday	15:37:28	Propaganda	Brundibar
141625	Friday	15:38:07	Propaganda	Brundibar

Ray

79032	Wednesday	14:45:57	Chaucer Today	SID

194415	Wednesday	14:59:34	Chaucer Today	blood libel
133252	Wednesday	15:09:16	Chaucer Today	blood libel
115896	Thursday	11:07:33	Chaucer Today	SID
62465	Friday	15:58:06	Chaucer Today	blood libel (Wed.) SID (Fri.)

Wendy

116768	Monday	14:03:21	Oral Histories and the Holocaust	transport experience
12299	Monday	14:06:53	Oral Histories and the Holocaust	transport experience
27258	Tuesday	15:10:13	Triumph of the Human Spirit	triumph of the human spirit
73436	Tuesday	15:13:44	Triumph of the Human Spirit	triumph of the human spirit
107217	Wednesday	9:50:21	Triumph of the Human Spirit	triumph of the human spirit
*102518** *	*Thursday*	*10:54:15*		*Jews helping other Jews*
79809	Thursday	14:06:24	Filial Piety	filial piety within concentration camps
175402	Thursday	14:26:44	Filial Piety	filial piety within concentration camps
47280	Thursday	15:04:08	Marginalization	social alienation of Jews
216643	Friday	10:49:57	Triumph of the Human Spirit	Jews who helped other Jews
140109	Friday	10:57:22	Triumph of the Human Spirit	Jews who helped other Jews
149483	Friday	14:56:16	Triumph of the Human Spirit	overcoming adversity
162286	Friday	15:47:19	Revisionism	Revisionist theories
131626	Friday	15:56:49	Revisionism	Revisionist theories

Appendix K
THE FORGOTTEN CAMPS

By "Lily," 2006-08-09 11:56:57

COURSE TITLE	GRADE
U.S. History Honors	9 – 12
BENEFITS AUDIENCE	TIME NEEDED
Culturally diverse	2 Days

LESSON PLAN CONTENTS

MODULE TITLE	MODULE TYPE	PAGE
Ravensbrueck Concentration Camp	Activity	4
Westerbork	Activity	5
Drancy	Activity	6
Plaszow	Activity	7
Riga – Kaiserwald	Activity	8
Chelmno	Activity	9

OVERVIEW

Students will listen to survivor testimony describing what life was like in various nazi camps.

OBJECTIVES

Goal 2: Students will understand the causes, events and consequences of United States participation in World War II (1107.00)

Objectives: The student will demonstrate the ability to: a. evaluate the Holocaust experience and other violations of human rights during World War II. (1107.08) PS-2-A-4

STANDARDS

5. Here.

THEMES	VOCABULARY TERMS
• forgotten camps	• Concentration camp

RELATED SEGMENTS (NOTE FROM K. LAWLEY: INTERVIEWEE NAMES DELETED FOR IDENTIFY PROTECTION)

SID:83293
SID:117982
SID:117376
SID:17660
SID:180658
SID:180688
SID:142107
SID:71407

SID:180736
SID:141158
SID:183887
SID:57882
SID:113047
SID:115280
SID:79245
SID:83359
SID:175346
SID:133313
SID:74430
SID:17494
SID:154730
SID:180441
r SID:51991
SID:205774
SID:180623
SID:160016
SID:74474
SID:63038
SID:55717

EQUIPMENT
- Computers
- Headphones with splitter
- Tape recorders

MATERIALS
- USHMM Europe Nazi Camp Map and Extermination Map
- DVD of Holocaust Survivor Testimonies
- The Forgotten Camps Activity Worksheet
- Holocaust Poetry, music and artwork

TEACHER PREPARATION

RATIONALE

TEACHING STRATEGY

PROCEDURES
- After students are finished responding to the warm-up, they will be introduced to the concept that typically students think there were only 3 or 4 Nazi concentration

camps (Auschwitz, Treblinka, Bergen-Belsen, Dachau) when in fact there were many all across Europe.

- I will share maps from the Holocaust Museum's website that show the many camps located in Europe and occupied Poland. Next, I will give students time to share their reactions to the number of camps.
- Students will be allowed to pick a partner to work with while in the computer lab.
- Students will be given 'The Forgotten Camps Activity Packet'.
- Directions for the packet will be given. (see packet)
- Students will move to the computer lab and start working.
- 5 minutes before class ends I will have students discuss their findings about the various camps similarities and differences
- During the next class period I will have a Holocaust Survivor Gallery set up around the room including poetry, music and art. Students will be given the following warm-up to respond to: Why is viewing art, literature and music important when studying a historical event? We will discuss responses and then I will lead into the following assignment: I will inform students that over the next 1/2 hour they will view all the pieces of art work, read poetry and listen to music that was created by people living in the ghetto or in concentration camps. After students have completed viewing the exhibit they will be asked to complete a free write on the following: Did viewing the art and poetry and listening to the music allow you to understand something new about the Holocaust? Why do you believe it is important to preserve and share works created by people living in the ghettos and concentration camps? Any other comments you might have.

WARM UP
When thinking about the Holocaust, what are some names of concentration camps that come to your mind?

ASSESSMENT
- Completed Packet Writing
- Activity based on poetry/art display
- Sharing of thoughts in classroom discussion.

LESSON PLAN ID
275

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